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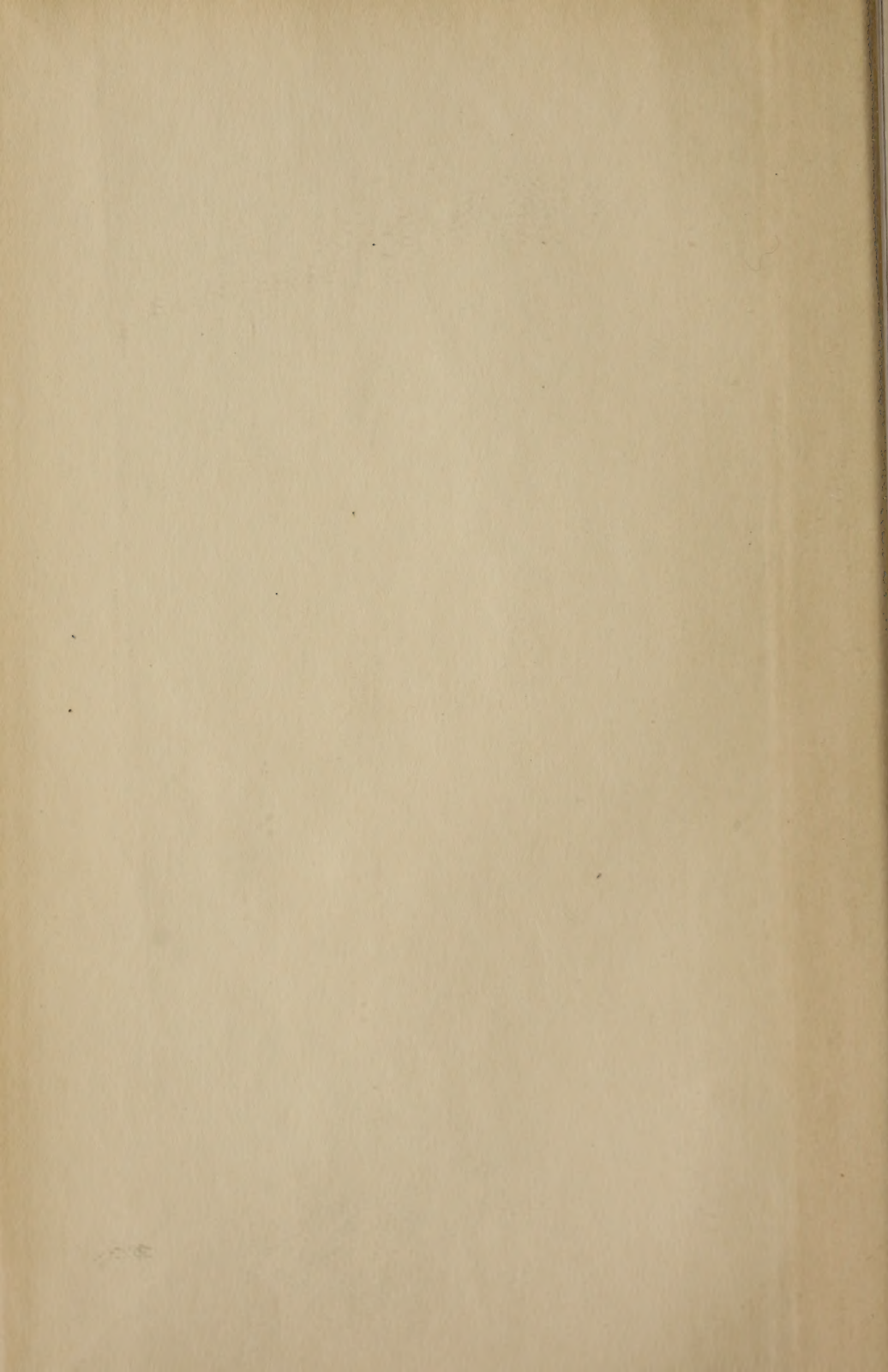
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GEORGE WATT, M. D., D. D. S.,
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L. P. BETHEL, D. D. S.,
TOLEDO, OHIO.

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INDEX TO VOLUME IX.

CONTRIBUTIONS—

| | PAGE |
|---|------|
| Actino-Mycosis, Pathology of.....by Joseph Abbott, L.D.S. | 517 |
| Address—President's.....by C. S. Case, M.D., D.D.S. | 413 |
| “ “by H. L. Moore, D.D.S. | 155 |
| “ “by Dr. R. W. Warner. | 271 |
| “ “by C. M. Wright, D.D.S. | 553 |
| Advice—is it Our Duty to Give During Gestation ? by J. R. Bell, D.D.S. | 376 |
| Amalgam Fillings—Careful Finishing of.by G. F. Cheney, D.D.S. | 105 |
| Amalgam.....by G. H. Wilson, D.D.S. | 108 |
| “ —Copper.....by L. E. Custer, D.D.S. | 215 |
| “ —Use and Abuse of.....by J. R. Owens, D.D.S. | 312 |
| Anæsthetics—Early....by A. Berry, D.D.S. | 378 |
| “ —An Address on..by Dudley W. Buxton, M.D., B.S. | 575 |
| Antrum—Empyæmia of Diagnosed by Electric Light, by Dr. T. Herung. | 521 |
| Arts and Sciences—Application of in Dentistry, by Dr. L. W. Comstock. | 471 |
| Association.....by C. R. Butler, M.D., D.D.S. | 157 |
| Bridge-Work—Practical Application of, by Everett M. Cook, D.D.S. | 201 |
| Calcific Inflammation.....by Dr. J. G. Templeton. | 159 |
| Canals—Root Filling.....by Dr. I. Douglass. | 364 |
| Case in Practice.....by R. M. Chase, D.D.S. | 280 |
| Caution.....by E. H. Raffensperger, D.D.S. | 512 |
| Cocaine Anæsthesia.....by J. L. Gish, M.D., D.D.S. | 355 |
| Continuous Gum and Rubber.....by Dr. L. P. Haskell. | 25 |
| Crown—The Dewey.....by Dr. S. B. Dewey. | 505 |
| Dentine—Sensitive.....by Dr. T. B. Jarard. | 73 |
| Dentures—Adaptation of.....by C. C. E. | 107 |
| “ —Artistic Adaptation of.....By Dr. L. W. Comstock. | 1 |
| Dentistry—Common Sense.....by M. H. Chappell, D.D.S. | 461 |
| Don't.....by J. P. Thompson, M.D. | 327 |
| Education—Medical for Dentists.by C. M. Wright, D.D.S. | 63 |
| Electricity as Applied in Dentistry.....by Dr. F. Creager. | 22 |
| “ —Dental.....by Dr. F. S. Whitslar. | 305 |

CONTRIBUTIONS—*Continued.*

| | PAGE |
|---|------|
| Excelsior.....by Dr. H. H. Harrison. | 570 |
| Eye Strain.....by J. R. Briggs. | 118 |
| Failures.....by Dr. C. R. Butler. | 561 |
| Filling—Robinson Method.....by Dr. A. Robinson. | 213 |
| “ —Tin and Gold Combined.....by G. H. Wells, D.D.S. | 274 |
| “ Artificial Teeth.....by C. C. Everts, M.D. | 511 |
| Fillings—Why do they Fail?.....by Dr. H. H. Harrison. | 409 |
| Hints—Practical.....by Dr. H. F. Barnes. | 112 |
| Hygiene—Dissemination of Dental among the Masses, by L. P. Bethel, D.D.S. | 370 |
| Iodoform—Some Results from the Use of.....by E. B. Davis, D.D.S. | 266 |
| Impression—Method of Obtaining.....by J. Megee, D.D.S. | 317 |
| Inconsistency.—The License Question in Court, by Dr. G. A. Mills. | 573 |
| International Tooth Crown Co. <i>vs.</i> Dentists of the United States. | 224 |
| Jaw—Fixation of, Cured by Operation....by Dr. S. C. Campbell. | 514 |
| Judgment—an Element in Dental Practice, by E. C. Chandler, D.D.S. | 318 |
| Metals—Combination of, for Filling....by W. N. Wilson, D.D.S. | 457 |
| Mistakes.....by W. N. Morrison, D.D.S. | 165 |
| Molars—Restoration of, Tipping with Gold..by Dr. J. C. Walton. | 353 |
| Nerve—Some Relations of the Fifth..by D. Ferrier, M.D., F.R.S. | 425 |
| Neurectomy of the Inferior Branch of the Fifth Nerve, by Dr. J. H. Glass. | 153 |
| Obturators.....by James Lewis, D.D.S. | 272 |
| Ohio Dental Society—Report of Seventh District, by E. G. Betty, D.D.S. | 572 |
| Orthodontia....by E. H. Angle, D.D.S. | 27 |
| One Way of Increasing a Dentist's Usefulness, by William D. Kempton, M.D., D.D.S. | 566 |
| Palate—Cleft—an Improved Appliance in the Treatment of, by H. A. Baker, D.D.S. | 257 |
| Patents Considered in Relation to the Patentees and the Public, by Nemo. | 580 |
| Patient—the Nervous.....by J. R. Callahan, D.D.S. | 162 |
| Plaster and Modelling Compound combined for Impressions, by L. E. Custer, B.S., D.D.S. | 62 |
| Pulp—Study of the Chemical Composition of, by W. H. Whitlar, D.D.S. | 557 |
| Pyorrhœa Alveolaris.....by J. R. Bell, D.D.S. | 310 |
| “ —Treatment of...by C. B. Atkinson, D.D.S. | 509 |
| Queries Answered.....by Dr. L. P. Haskell. | 460 |
| Retrospective.....by Dr. J. W. White. | 114 |
| “Royal Suc’”.....by Dr. J. F. Siddall. | 324 |
| Sketch of Dr. G. W. Keely.....by George Watt, M.D., D.D.S. | 57 |
| Success.....by A. J. Parker, D.D.S. | 286 |
| Survival of the Unfit in Human Dentition, by J. C. Parker, D.D.S. | 422 |

| CONTRIBUTIONS— <i>Continued.</i> | | PAGE |
|--|---------------------------------|------|
| Teeth—Extraction of Deciduous..... | by G. H. Swift, D.D.S. | 282 |
| Therapeutics—Dental..... | by W. T. Jackman, D.D.S. | 167 |
| Thoroughness—Lack of in Dental Operations, | | |
| | by L. P. Bethel, D.D.S. | 211 |
| To Dentists..... | by E. A. Gillette, D.D.S. | 468 |
| Transplantation and Replantation..... | by H. A. Smith, D.D.S. | 29 |
| What Will '89 Bring Us?..... | by W. H. Whitslar, D.D.S., M.D. | 60 |
| What Shall We Do in the Case?.. | by G. E. Corbin, M.D., D.D.S. | 418 |
| Why I Failed..... | by A. M. Merkle, D.D.S. | 467 |
| Woman's Work in the Profession | by Martha J. Robinson, D.D.S. | 564 |

COMPILATIONS—

| | | |
|------------------------------|--------------------------|---------------|
| Bridge-Work—Removable..... | by E. A. Concell, D.D.S. | 441 |
| Gums—Some Affections of..... | by F. Lankester. | 37-84-129-177 |

CORRESPONDENCE—

| | | |
|--|-------------------------|---------|
| American Dental Society of Europe..... | by Dr. N. W. Williams. | 530 |
| Continuous Gum and Rubber..... | by Dr. W. H. Miller. | 175-332 |
| “ “ “..... | by Dr. L. P. Haskell. | 227 |
| Congress—International Dental..... | by Dr. N. W. Williams. | 500 |
| College—Boston Dental..... | | 534 |
| Implantation Data Desired..... | | 334 |
| Johnstown and her Dentists..... | by S. C. Poland, D.D.S. | 379 |
| Letter from Europe..... | by W. Mitchell, D.D.S. | 534 |
| Queries..... | by Dr. L. P. Haskell. | 292 |
| “ Answered..... | by E. M. Cook, D.D.S. | 330 |

EDITOR'S SPECIALS—

| | | |
|--|---------------------|---------|
| Ancient Literature—Revival of..... | | 586 |
| Anything New Under the Sun?..... | | 444 |
| A Surprise..... | | 445 |
| Climbing and Digging..... | | 88 |
| Crime and Punishment..... | | 91 |
| Death's Doings..... | | 381-543 |
| Definite Thought..... | | 179 |
| Dental Periosteum..... | | 442 |
| District Societies..... | | 183 |
| Etiology of Caries—More About it..... | | 539 |
| Give Well Defined Thoughts..... | | 335 |
| Health of Dentists..... | | 292 |
| Heat as a Disinfectant..... | | 231 |
| Important..... | | 535 |
| Let us be Accurate..... | | 294 |
| Obituary..... | 144-145-381-382-383 | 384 |
| Ohio State Dental Society..... | | 585 |
| Osophagotomy..... | | 229 |
| Post Graduate School..... | | 294 |
| Professional Sacrifices of Early Days..... | | 536 |
| Prospectus for 1890..... | | 534 |

| EDITOR'S SPECIALS— <i>Continued.</i> | PAGE |
|--------------------------------------|------|
| Sad Indeed..... | 587 |
| Syringe—Dunn's Medical..... | 91 |
| Unripe..... | 446 |
| Volume IX..... | 39 |

WHAT WE SEE AND HEAR— Edited by L. P. BETHEL, D.D.S.

| | |
|---|-----------------|
| Abscess of Ear Mistaken for Toothache..... | 94 |
| Acid—Arsenious, Poisoning..... | 297 |
| “ —Chronic, for Sweating..... | 92 |
| “ —Carbolic—Antidote..... | 132 |
| “ —Sulphuric and Tartar..... | 132 |
| “ —Carbolic Disinfecting Power..... | 138 |
| “ —Sulphophenic as a Disinfectant..... | 187 |
| Aluminum—Deposition of..... | 40 |
| Amalgam—Copper..... | 136-235-247-544 |
| “ —Effects of..... | 545 |
| “ —Mixing..... | 545-546 |
| “ —Copper—Preserving Qualities..... | 549 |
| “ —Washing..... | 139-237 |
| “ —Manipulating Copper..... | 94 |
| “ —Copper for Repairing Plates..... | 41 |
| Anæsthetic—Local..... | 98-186 |
| Antipyrine..... | 40 |
| “ —Hypodermic Injections of..... | 41 |
| “ as a Local Styptic..... | 135-548 |
| Antrum—Changes in Shape of..... | 133 |
| “ —Treatment of Diseased..... | 134 |
| Application for Hands..... | 41 |
| Arsenic—Applying..... | 338 |
| Blow-Pipe..... | 93 |
| Block—Filing..... | 186 |
| Bleaching—Care in..... | 239 |
| Bogies..... | 337 |
| Breath—Bad..... | 92 |
| Breathing—Ill Effects of Mouth..... | 547 |
| Bridge-Work..... | 137-342-544 |
| Broach—a Superior..... | 132 |
| Canals—Opening..... | 545 |
| Capping Pulp..... | 341 |
| “ —Instruments for..... | 296 |
| Cast—A Fine..... | 588 |
| Celluloid—Incombustible..... | 546 |
| Cements—Manipulating..... | 137 |
| Chloroform—When to use..... | 190 |
| Chloric Acid—To Rid Stomach of after Chloroform Administration..... | 588 |
| Clasps..... | 588 |
| “ —Polishing..... | 185 |

WHAT WE SEE AND HEAR—*Continued.*

| | PAGE |
|--|------|
| Cleaner for Root Canal..... | 236 |
| Clamp—an Improved..... | 240 |
| Clamps..... | 299 |
| Cocaine Obtunder..... | 132 |
| “ in Dentition..... | 93 |
| “ in Devitalizing Pulps..... | 295 |
| Contour or Crown..... | 133 |
| Cord—Engine—To Prevent Slipping..... | 240 |
| Crowns—Sulphur for Setting..... | 135 |
| “ —Fitting..... | 185 |
| “ —Making Dies for..... | 244 |
| “ —Preparing for Setting..... | 337 |
| “ —with Metal Root..... | 549 |
| Crown—Setting Logan..... | 48 |
| “ —New Porcelain..... | 96 |
| “ —Converting Logan into a Band..... | 141 |
| “ —Setter for Logan..... | 243 |
| “ —A New..... | 594 |
| Crowning Frail Roots..... | 139 |
| “ —Method of..... | 391 |
| Cylinders from Japanese Paper..... | 236 |
| Dam—Applying the..... | 238 |
| “ — “ to Short Teeth..... | 388 |
| “ —Guide for Punching..... | 389 |
| Deposits—Removal from Artificial Dentures..... | 183 |
| Dentist—The Successful..... | 544 |
| Dentures—Application of to Sensitive Mouths..... | 589 |
| Die Plate..... | 189 |
| “ “ for Stamping Crowns..... | 45 |
| Die for Crowns—Easy to Make..... | 387 |
| Disinfectant..... | 46 |
| Disks—Sand-Paper..... | 297 |
| Drills—To Remove Broken from Root-Canals..... | 300 |
| Eczema from Dentition—Treatment of..... | 338 |
| Electrical Action in the Mouth..... | 134 |
| Enamel for Metal..... | 184 |
| Epilepsy from Dental Irritation..... | 43 |
| Epiglottis—Method of Raising..... | 140 |
| Ether..... | 40 |
| “ —Administration of..... | 340 |
| Etching on Steel..... | 41 |
| Exostosis Dentium..... | 45 |
| Examination—Necessity for Thorough..... | 545 |
| Extraction—After Pain of..... | 183 |
| Extracting to Regulate..... | 297 |
| Facts worth Remembering..... | 238 |
| Feet—Remedy for Swollen..... | 92 |
| Filling—Canal..... | 237 |

| WHAT WE SEE AND HEAR— <i>Continued.</i> | PAGE |
|---|------------|
| Filling—Oxyphosphate Cement..... | 242 |
| “ —Cotton as a Root. | 295 |
| “ —To Finish Copper Amalgam..... | 337 |
| “ —of Cotton for Root Canals..... | 385 |
| “ —Undercuts | 386 |
| Fillings—Gutta-Percha..... | 595 |
| Former's—Spyer's..... | 296 |
| Gelatin—Use of Medicated in Fistulæ..... | 390 |
| Glass—Filing | 92 |
| “ —Etching on..... | 188 |
| Gold—Annealing..... | 142 |
| “ Inlay..... | 596 |
| Gum—Excision of | 237 |
| Gutta-Percha Solvent | 134 |
| Hands—Dirty | 183 |
| Hemorrhage | 92 |
| “ —Treatment of Secondary after Extraction..... | 590 |
| Hints—a Batch of..... | 190 |
| Ichthyol..... | 92 |
| Instruments—Tempering..... | 44-132-245 |
| “ Buffing..... | 238 |
| Instrument Sharpener..... | 235 |
| Impressions—Taking Lower..... | 95 |
| “ — “ Plaster..... | 184 |
| “ of Difficult Cases..... | 184 |
| Implantation—Teeth for | 187 |
| Infection—To Prevent..... | 138 |
| Inlay Cylinders..... | 136 |
| Inhaler—A Simple..... | 548 |
| Iodoform—To Destroy Odor of..... | 385 |
| “ —Oil of..... | 133 |
| “ —Uses of..... | 592 |
| Investing..... | 239 |
| Irregularity—Preventing and Correcting..... | 191 |
| Just So..... | 337 |
| Lancing—Painless..... | 184 |
| Leakage—Test for..... | 544 |
| Ligatures—To Hold in Place..... | 188 |
| Lobelia as a Surgical Dressing..... | 184 |
| Lubricator..... | 544 |
| Malaise after Dental Operations..... | 295 |
| Matrix and Separation..... | 387 |
| “ —Objections to Use of for Amalgam..... | 386 |
| Medicines—Warm before Using | 235 |
| Mercury—Oxycyanide of..... | 40 |
| “ — “ as an Antiseptic..... | 43 |
| “ —To Disguise Taste of | 296 |
| “ | 93 |

| WHAT WE SEE AND HEAR— <i>Continued.</i> | PAGE |
|--|---------|
| Microbes—Glossary of..... | 97 |
| Mouth-wash—A Good..... | 184 |
| Mouth—Preparing for Filling.... | 298 |
| Molar—Four-Rooted Lower..... | 236 |
| Moisture—To Keep from Fillings..... | 239 |
| Narcosis—Method of Producing..... | 47 |
| Napkins—Dental..... | 447 |
| Necrosis or Caries?..... | 43 |
| Nerves—Destroying..... | 298 |
| Nickel..... | 42 |
| Nitrous Oxide—Dangers of Administration..... | 592 |
| Odontiana..... | 41 |
| Paper—Iodized for Canals..... | 386 |
| Pain Obtunder..... | 134 |
| Peppermint Oil as an Antiseptic..... | 93 |
| Peroxide of Hydrogen—Action of..... | 185 |
| Plates—Aluminum..... | 595 |
| “ “ with Vulcanite Mountings..... | 596 |
| “ —Proper Conformation of..... | 246 |
| “ with Flange..... | 340 |
| “ —To Repair Cracked Metal..... | 184 |
| “ —Suction for Lower..... | 593 |
| Plaster—To Disguise Taste of..... | 447 |
| Polisher—A New..... | 449 |
| Powder Carrier..... | 588 |
| Practical Suggestions..... | 450 |
| Pulps—Devitalizing..... | 42 |
| “ —Sterilized Sponge for Capping..... | 590 |
| “ —Treatment of Inflamed..... | 94 |
| Pulp Capping..... | 588 |
| “ Exposure..... | 187 |
| “ Stones—Diagnosis of..... | 135 |
| Pyorrhœa Alveolaris—Origin of..... | 133 |
| “ —Treatment of..... | 243 |
| “ —Diagnosis of..... | 448 |
| Retaining Appliance..... | 546 |
| Root Canals—Preparing..... | 95 |
| “ “ —Lead for..... | 589 |
| “ “ —Reasons for Enlarging..... | 186 |
| “ “ —Treatment of..... | 590 |
| Roots—To Fill..... | 183 |
| “ —Extracting Decayed..... | 237-241 |
| “ —Preparing for Crowns..... | 449 |
| Rubber—Staining Plaster..... | 235 |
| “ Dam—to Remove Easily..... | 236 |
| Short Sitzings..... | 295 |
| Societies..... | 189 |
| Sinus—To Prevent Closing..... | 337 |

| WHAT WE SEE AND HEAR— <i>Continued.</i> | PAGE |
|---|---------|
| Soldering..... | 241 |
| Solder—A Good..... | 339 |
| Spunk..... | 547 |
| Splint—Interdental.... | 142 |
| Stain—Removal of..... | 385 |
| Support for Implanted Teeth | 391 |
| Syphilis—Contracted through Teeth..... | 97 |
| Tablet—Weighted Cement..... | 236 |
| Teeth—To Tighten Loose..... | 42-240 |
| “ —Shoeing Abraded..... | 96 |
| “ —Absorption of Roots of Pivoted..... | 244 |
| “ —To Grind and Polish..... | 295 |
| “ —Filling Pulpless, Temporary | 299 |
| “ —Moving Individual..... | 337 |
| “ —Artistically Adapting..... | 547 |
| “ —Making Sections of..... | 593 |
| Tooth—Overcoming Hypersensibilities of..... | 591 |
| Tribromphenol..... | 44 |
| Trimmer for Roots..... | 385 |
| Tubercle Bacillus..... | 545 |
| Vulcanizing—Time of..... | 133 |
| “ —Care in..... | 448 |
| Warts—Treatment of..... | 40 |
| Wash for Sloughing Surfaces | 185 |
| “ —Mouth—Use of..... | 186 |
| Wax—To Make Sheet..... | 242 |
| “ —To Remove the..... | 447 |
| “ —Sticky..... | 589 |
| Zinc—Oxyphosphate of..... | 93 |
| SOCIETY PROCEEDINGS AND MISCELLANEOUS— | |
| American Society..... | 435-481 |
| “ and Southern..... | 76 |
| Chicago Society..... | 121-170 |
| National Association of Dental Examiners..... | 494 |
| “ “ “ “ Faculties..... | 497 |
| Ohio State Society..... | |
| Seventh District Society..... | 234 |
| Vermont State “ | 288 |
| Minnesota Dental Law..... | 344 |
| An Explanation..... | 393 |
| BOOKS AND PAMPHLETS— | |
| A Compendium of Dentistry for the Use of Students and Practitioners..... | 53 |
| A Handbook of Therapeutics..... | 249 |
| A Practical Treatise on Headache, Neuralgia, Sleep and its Derangements, and Spinal Irritation..... | 350 |
| A Text-Book on Animal Physiology..... | 598 |

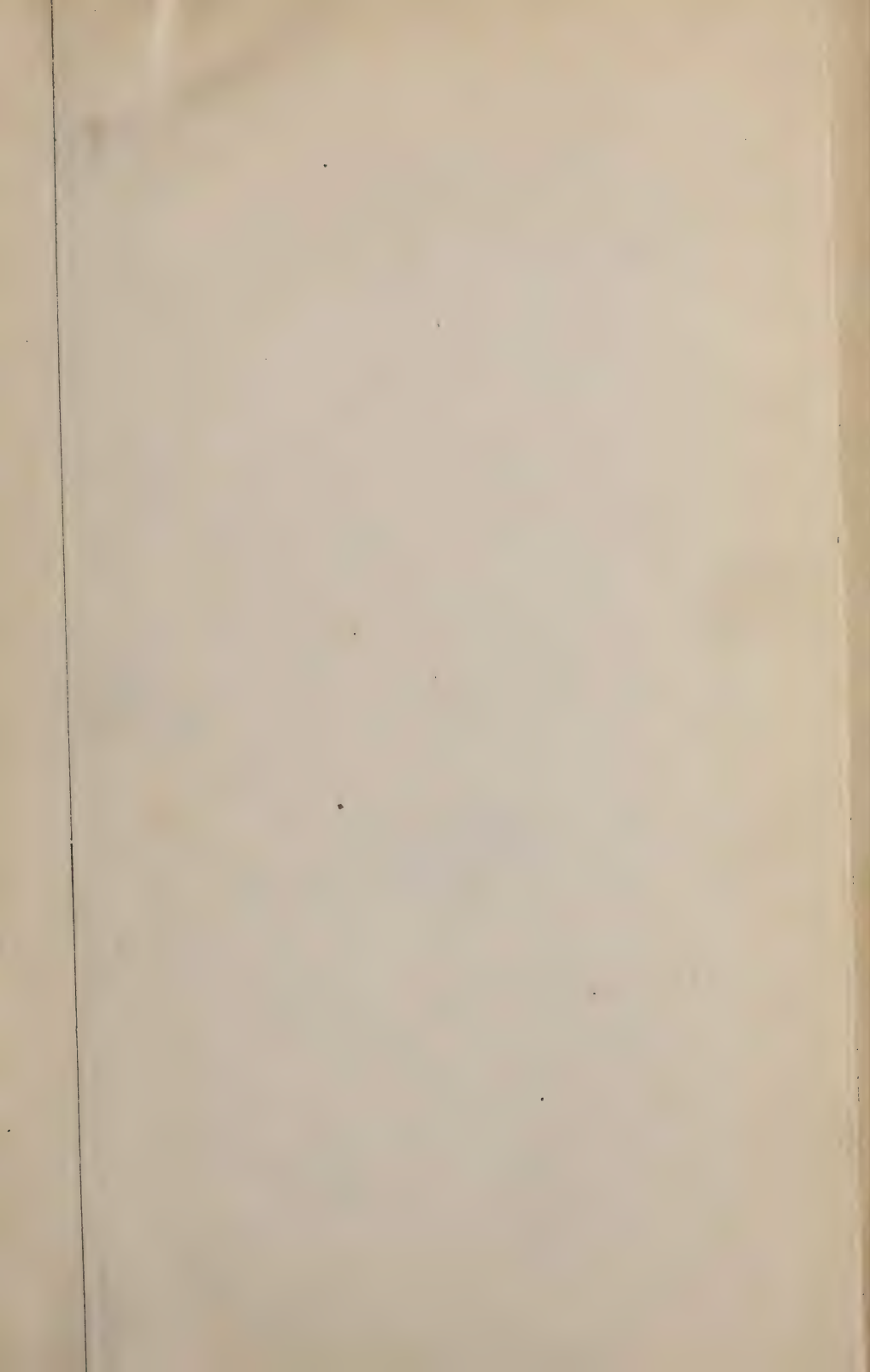
BOOKS AND PAMPHLETS—*Continued.*

PAGE

| | |
|--|-----|
| A Text-Book of Materia Medica, Pharmacology and Special Therapeutics..... | 598 |
| A Treatise on Surgery..... | 503 |
| A Treatise on Hysteria and Epilepsy..... | 551 |
| Alden's Manifold Cyclopaedia.. 54-102-149-198-251-301-351-455-599 | 599 |
| Annual of the Universal Medical Sciences | 552 |
| Bright's Disease..... | 405 |
| “ “ of the Kidneys..... | 551 |
| Brown's Medical Diagnosis..... | 197 |
| Contributions to the History of Development of the Teeth..... | 198 |
| Dental Chemistry and Metallurgy..... | 596 |
| Dental Science..... | 249 |
| Dental Medicine | 405 |
| Diet Tables..... | 55 |
| Diseases of the Heart and Lungs..... | 101 |
| “ “ “ | 198 |
| “ “ Nervous System..... | 551 |
| Disinfection and Disinfectants..... | 102 |
| Etiology of Constitutional Irregularities of the Teeth..... | 199 |
| Excessive Venery..... | 149 |
| Favorite Prescriptions of Distinguished Practitioners with Notes on Treatment..... | 250 |
| Hamilton's Medical Jurisprudence..... | 148 |
| Indigestion, Biliousness and Gout in its Protean Aspects..... | 250 |
| Insomnia and Other Disorders of Sleep..... | 301 |
| Nervous Exhaustion..... | 349 |
| Operative Dentistry..... | 196 |
| Orthodontia, or Malposition of the Human Teeth..... | 551 |
| Our Teeth..... | 406 |
| Physicians Leisure Library..... 454-504-551 | 551 |
| Pulmonary Tuberculosis..... | 100 |
| Therapeutics..... | 250 |
| The International Medical Annual and Practitioners' Index.... | 248 |
| The Principles and Practice of Dentistry..... | 199 |
| Transactions of the American Dental Association..... | 103 |
| The Sanitary Volunteer..... | 149 |
| The Story of Louisiana..... | 406 |
| “ “ “ Vermont..... | 150 |
| Wilmington, Delaware..... | |

OUR AFTERMATH—

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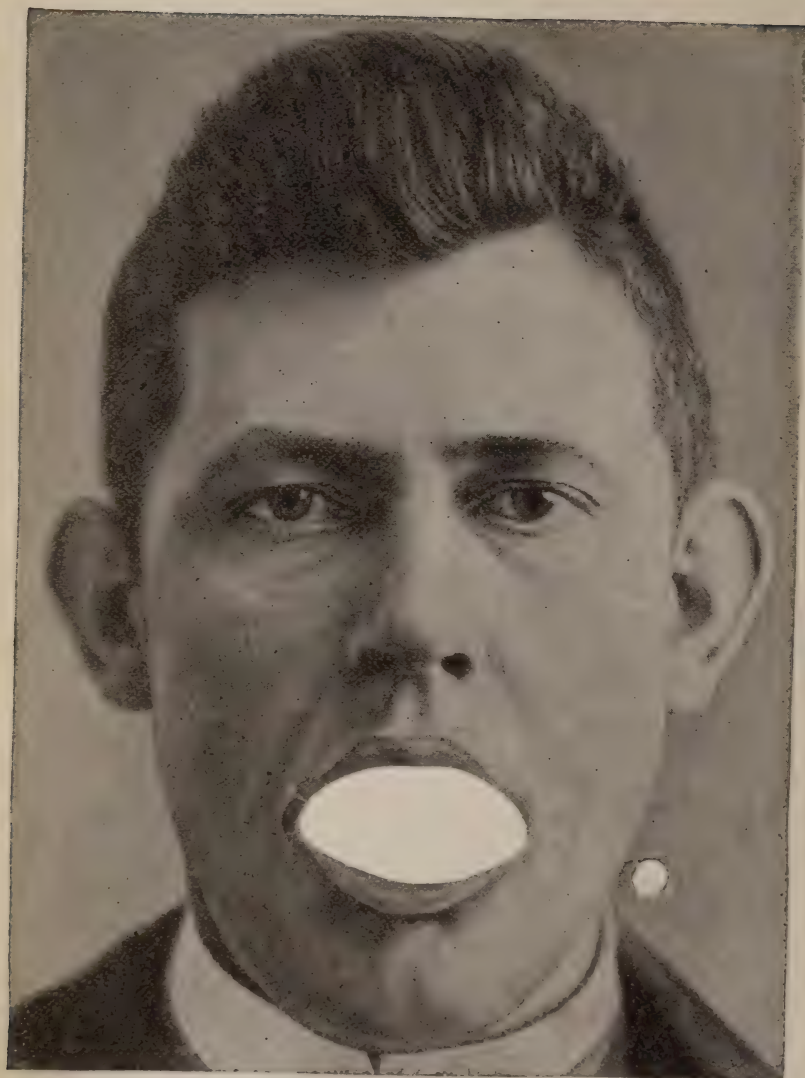
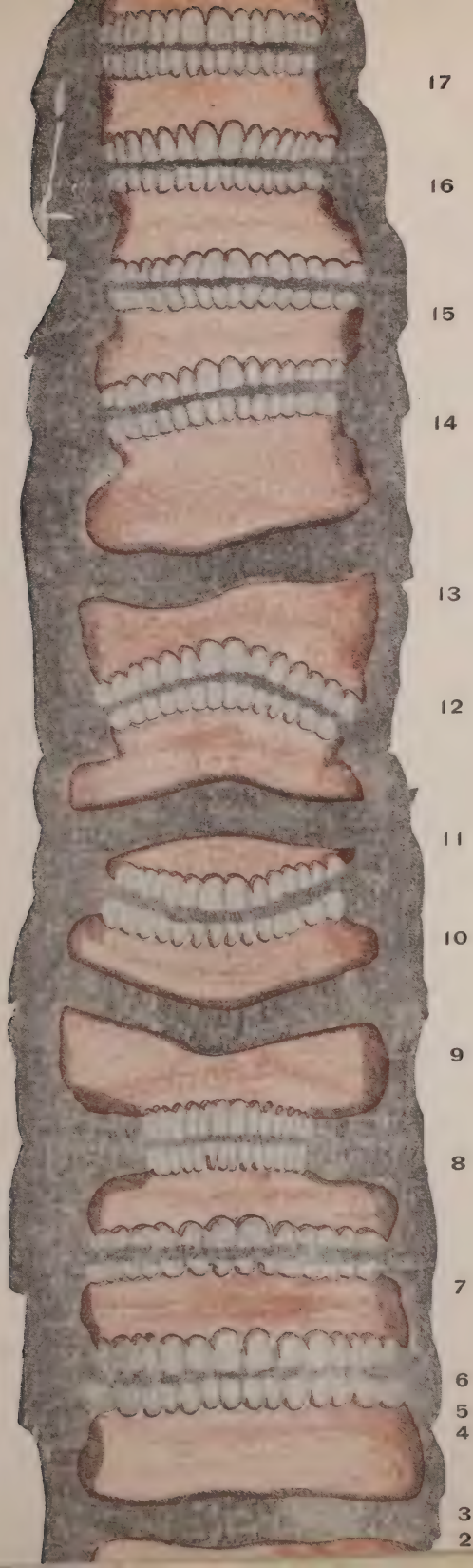


PLATE I.

MANIKIN.

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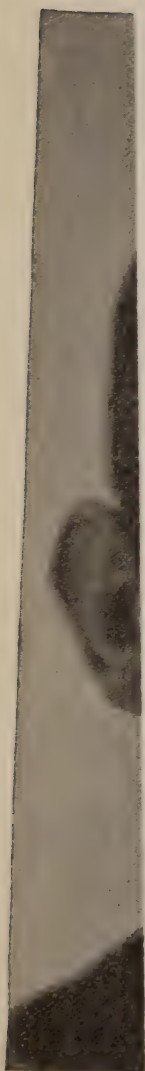
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DESCRIPTION OF MANIKIN.

Fig. 1. Excessive exposure of inferior maxilla.

Fig. 2. Usual exposure.

Fig. 3. Excessive exposure of superior maxilla.

Fig. 4. Exhibits the result of constructing a set of teeth upon Fig. 1 without regard to the position of the maxilla.

Fig. 5. Shows proper construction.

Fig. 6. Exhibits the result of constructing a denture upon Fig. 3 in disregard of the relative position of the maxilla.

Fig. 7. To be contrasted with Fig. 5, showing difference in age of teeth.

Fig. 8. Shows that in selection of teeth the dentist was ill-advised about the conditions, size of face and oral cavity. Possibly misled by a small cast.

Fig. 9. Exhibits a peculiar formation of the maxillæ not uncommon, and which will require especial care to avoid the appearance presented in Fig. 10.

Fig. 10. Referred to above.

Fig. 11. Exhibits the reverse of Fig. 10.

Fig. 12. The result of ordinary setting of teeth in a case like Fig. 11.

Fig. 13. Irregular absorption, which will cause the denture to present the appearance of Fig. 14 if no precautions are taken.

Fig. 14. Referred to in notes of Fig. 13.

Fig. 15. Exhibits inartistic and incorrect adaptation, which may arise from a lack of ability to see and understand the relation of line to line.

Fig. 16. Arises from same cause.

Fig. 17. Shows that the denture has not been placed on the median line.



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No. 1.

Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

THE ARTISTIC ADAPTATION OF ARTIFICIAL
DENTURES.*

BY DR. L. W. COMSTOCK, INDIANAPOLIS, IND.

[Illustrated with photographic reproductions of his drawings and sketches.]

DR. COMSTOCK prefaced his paper with the following remarks:

It has just occurred to me that if, before reading this paper, a description were given of some methods used by an artist in composing a picture, say a landscape in color, you would realize, as this subject is presented, how the same kind of training and ability will be necessary for the dentist; first, to enable him to see, understand and record the conditions of a human face; and second, to apply his knowledge in artistically adapting artificial dentures.

Let us suppose that an artist has decided to paint a picture

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NOTE.—This paper was prepared for and read before the Odontological Society of Indianapolis, and, in accordance with its rules, became its property, but, upon the application of the Executive Committee, the manuscript and the drawings were presented by the Odontological Society to the Indiana State Dental Association, through which arrangements were made to print in the columns of the OHIO JOURNAL.

representing a valley in the Far West, which is to be composed from a number of scattered sketches, from notes and from memory. All the conditions must be studied and understood, and the work begins with the selection of a geometrical plan, the elevation from which the view is to be seen, and the point of sight. The season, the time of day, state of the atmosphere and direction of and strength of light must be noted; the geological formation of the surrounding mountains studied, and it is to be remembered that they have a deeper, clearer blue in aspect than our Alleghenies. The action of the wind must be considered so that cloud forms, the bending of the trees, the ripples on the water, and the drifting smoke from the wigwam all tell the same story of direction and force. The trees and flowers are indigenous, their size and form are proportioned to this locality, and the condition of their foliage indicates the time of the year. The soil of this mountain region has been examined, and the nature of its products are known; all these things must be seen and recognized, together with the reason why they so exist, and the effect their existence has upon the surroundings; in fact, all things are to be held up to nature as in a looking-glass.

After this comes technical skill, the knowledge of pigments, and so many other important matters, that to mention all of them would occupy too much time. To enable the artist to accomplish this work in such a manner that it will pass the criticism of those who are competent to judge, has required the labor and study of years; but once acquired, he, as a true artist, sees all these things and puts the principles into practice in an easy, natural, errorless manner. The same course must be pursued by the dentist who desires to accomplish his work with ease and skill; he must undergo the same processes of preparation, the most important of which is the training of the eye to see all of the things necessary that are to be valued in the construction of artificial dentures; what they are, will be developed in this paper, but, as I said before, the plan of presenting this subject is founded on the manner of training the artist to prepare himself for his work, and if the dentist wishes to rise above the common herd in the profession it will be by traveling over the same rugged road. But my present aim being to interest you—leaving the hard study and labor for the future—I shall endeavor to lead you around by “green pastures and still waters.”

"If thus we speak, if light and art
And learning lend their banded aid,
We must not pause nor be afraid,
We have our part."

"And well and earnest word beseems
The work an earnest hand prepares;
It's load more light the labor deems,
When sweet discourse the labor shares.
So let us duly ponder all
The work our feeble strength achieves,
For mean, in truth, the man we call,
Who ne'er what he completes conceives.
And well it stamps our human race,
And hence the gift to *understand*,
That man within the heart should trace
What e'er he fashions with the hand."

THE PAPER.

So wrote Schiller, poet, artist, artisan, mechanic, and the key note of my theme is embraced therein; for when the dentist's heart is in his work, coupled with understanding, the result will be a success artistically as well as mechanically.

The hand does not create what the mind does not conceive; the hand of one man may copy the creation of another, but the product is purely mechanical. Is it true that the mind does not conceive what the eye does not see? It is true that many of us are not able to create beautiful and correct forms because we are deficient in the power to see things as they are; some are color blind, some have but small ability to judge of proportion and form, and none have all the requirements of perfect sight. Raphael, Titian, Michael Angelo, and the great artists of modern times were lacking in some of the qualifications of the perfect artist; one had color ability far beyond the other, while form was wanting; one was a master of proportion while deficient in feeling. In some cases these deficiencies cannot be remedied because of an imperfect organism, but the more fortunate may acquire the power to see all things as they are, and possibly it is only necessary to direct attention to the object to enable any one to see enough for the purpose presented here.

To train the eye to *see* all things pertaining to the artistic adaptation of artificial dentures is of first importance in embarking in this study, and it is to many the most difficult part of it,

because of the human imperfections above mentioned, which teaching, training and practice will do much to overcome. But, if there is any weakness in the perceptive faculties for form, location, size, proportion, movement, grace, beauty or color, in the ratio of that which is lacking, the work will fail.

The regular practitioner of to-day falls far short of rendering the service to his patrons that the world has a right to expect, when the great progress made in the arts and sciences in the past twenty-five years is compared with the few improvements made in mechanical dentistry. There is now a demand for improvement in the artistic adaptation of artificial dentures that must be met without increasing prices. The demand is not confined to the people who are able to wear continuous gum work, since the patron with the limited income has learned that there is nothing to prevent his obtaining a correct denture, except the incompetency of the dentist.

A demand for payment based upon the claim that the work is done properly when the substitutes answer the purpose of mastication, and retain their position, will not hold good in law if there is a maladjustment that is apparent to the ordinary observer. It is expected that lost outline will be restored, and true proportion maintained; that the expression will be natural, and that the selection and adjustment of the teeth will be in perfect harmony with the surroundings; otherwise, the work will be as decided a failure as if the articulation were wrong.

Establish the fact that more than mechanics are involved in substitution, then the degree of excellence necessary to make the work satisfactory will depend upon the knowledge of the purchaser.

We ought to be able to supply artificial dentures in every-day practice equal to the best continuous gum in many respects, and superior in others, without the enormous expense of that heavy work. The obstacles in the way of doing this are numerous, but are not insurmountable if the dentist is capable and willing to add another branch of learning to his many qualifications.

The principles of art are as clearly defined as the principles of mathematics, and can be as easily taught, but just how much time and labor will be required for the study preparatory to the practice of æsthetic dentistry depends upon what nature has done for the individual. A knowledge of artistic anatomy, as applied

to the human face; a knowledge of classic outline as a basis for comparison; an eye educated to see clearly perfections and imperfections; an ability to make a record of the conditions which will enable him to artistically adapt the artificial dentures; these should be included in the qualifications of the practitioner. They who are blessed with an ability to see and love art can, with little effort, acquire a knowledge of it; but most men have to learn how to make a correct estimate of everything from an artistic point of view; then, if an interest grows with the study, they may, by practice, reach the same degree of excellence.

Art has come to be an essential element in human activity, and the failure of a workman to recognize this fact is stamped ineffaceably upon the product of his labors. It is not necessary to go outside of our calling for proof of this. Look at the people who are wearing artificial teeth, and you will find in most cases something wanting to make the substitution perfect; something that was overlooked or considered of little consequence, until the insertion of the plate demonstrated that a disregard of an apparently unimportant matter had marred the expression of the face, a result for which the dentist alone was responsible, because after taking an impression, an articulation, and making a selection of teeth, he began the mechanical work, trusting to chance to bring about a satisfactory adaptation.

A weak attempt is sometimes made to shirk the responsibility of a possible failure by asking the patient to select the teeth or to express satisfaction with their appearance when placed in the mouth on a trial plate, but older dentists, who, after long practice, become familiar with the causes of failure, avoid them by using greater watchfulness and care, and their experience aids them in bringing about a result *that the skillful but young practitioner may reach at once if he will make a study of artistic adaptation.*

There are hopes that art will be applied to dentistry, and will receive the attention from our educators that it deserves. Then there will be no more stumbling in doubt and darkness; and that when we study the human features as artists, anatomists, and physiogomists, a revelation will come. All preconceived ideas of a standard based upon a casual observation will vanish, and for the first time we will be competent to see and value the service we may render.

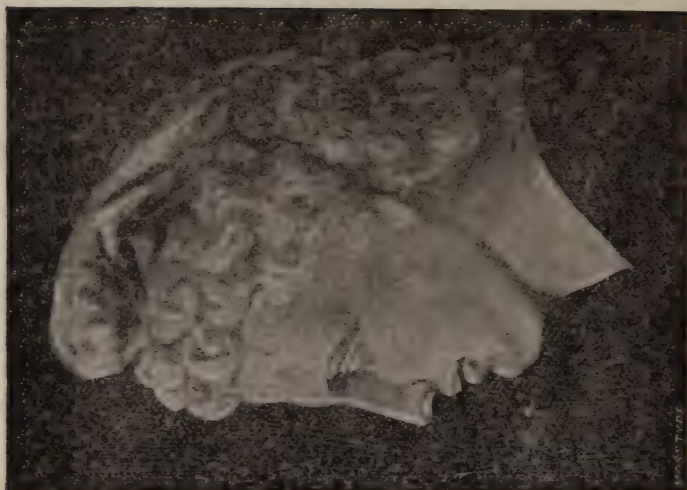


FIG. B.



FIG. A.

It is my intention to demonstrate the importance of training the *eye* to *see* and the *hand* to *record* the actual conditions of the face, and to so estimate all the surroundings that the plate work will be a success artistically, and, with the aid of some sketches, an effort will be made to illustrate true proportion.

There is not time to make a study of the lines of beauty, but we will separate the face into three parts by horizontal lines; one across the top of the forehead, another across the lower edge of the brow, one across the lower edge of the wing of the nose, the last under the chin, and you will obtain the recognized standard of division. A line drawn from the top of the forehead to the center of the chin should divide the face into equal parts which balance each other in every respect. Notice that the facial line is straight and almost perpendicular. The forward inclination of the head is common to the statuary of classical subjects, especially the antique. The nose is straight, not Roman, and the face is intended to represent the highest type of manly beauty.

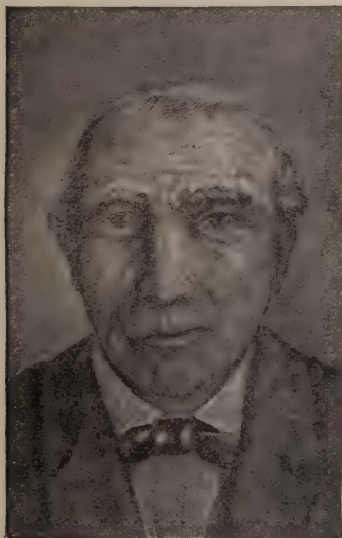


FIG. C.

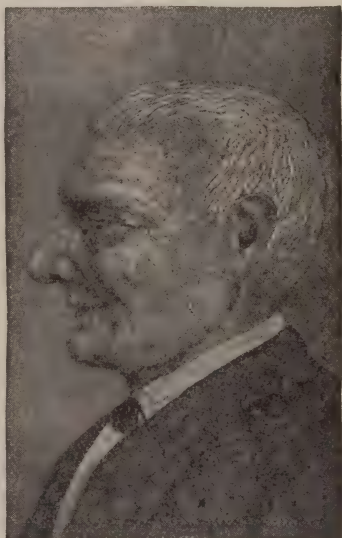


FIG. D.

Now, with a standard of proportion established, make an effort to build up a wreck like figures C and D. The facial line is not perpendicular nor is it straight; the inclination is not forward but backward; these lines of direction may determine the angle at which the teeth are to be set. The lower third of the

face is too short for good proportion, so that it is desirable to use teeth long enough to correct that defect. The upper lip has receded, deepening the lines from the wing of the nose to the corner of the mouth. Determine the amount of rebuilding necessary, estimate the other lines of the face. Do not build up one place round and full so as to produce a strong contrast with the foot prints of time now beyond our power to obliterate. If there is not support enough for the lips and cheeks the lines will be too distinct, leaving the tissues flabby, so that the depressions will not have the same relative values. The face is crooked, the nose is to the left, the lips are thin on the left, one side of the face is smaller than the other, one corner of the mouth is elevated, one side is sunken in, the muscles on the left have an ugly habit of lifting the corner of the mouth very high. The apparent age of the subject indicates wear of any remaining teeth, and that there are spaces between them.

Examine the articulation in such cases and you will find the inferior maxilla twisted to one side, which was no doubt caused



Fig. h.

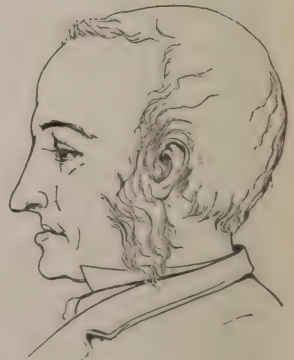


Fig. i.

by long use of the few remaining teeth on that side, and that the superior maxillary process is very much absorbed.

A view from below the chin proves that the face is round, not sharp, and gives information which will aid in deciding the size and shape of the arch on which to place the teeth, for, although the cast is small and V-shaped, the mouth and face are large, so that big teeth and a broad denture should be provided. A study of the profile will help to decide the position in which to place the incisors (Fig. D), but a disproportion of the lips (Figs.

h, i), or a peculiarity of expression while talking or laughing, may cause the modification of a rule.

If the face is distorted when the mouth is open by an unequal elevation of the sides of the upper lip (Fig. E), or if the mouth is crooked (Fig. D), and a like effect is produced, the deformity may be reduced by elevating the line of occlusion on the high side, so that the contrast between it and the raised lip will not be so strong.

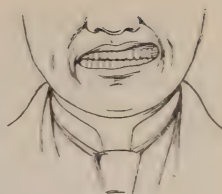


FIG. E.

Instead of placing the central incisors directly under the nose when restoring a face like this (Fig. C), move them so that they will occupy a position in line with both nose and chin, because, when the mouth is open, showing a denture constructed differently, the crookedness is more noticeable. (See Fig. 17, Manikin.) If the patient is obliged to use teeth on the side opposite to those that have rendered all the late service, it will aid in correcting the irregularity, because it is often the result of a habit of holding the lower jaw to one side instead of an actual deformity.

Though the facial line was not straight originally, there was some continuation of it, instead of the angular breaks now seen; therefore, the artificial teeth and gums should be set so that the former profile will be restored.

The demand for restoration and the opportunity offered for the application of the principles of artistic adaptation are made so plain in this case that any one can see them, but greater difficulties are to be met with, which will call for all the skill that can be summoned when it is applied to cases where a trained eye and careful study are required to detect the defects.



FIG. F.

The mechanical principles of construction of artificial dentures ought not to be ignored, but they must yield somewhat to the demand for improvement in personal appearance if they come in conflict, as was the case represented

by Fig. F, where the face was badly distorted by disease, and was restored to good form by the use of plates constructed after the model of Fig. G.

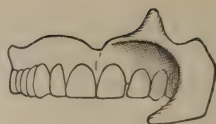









FIG. G.



It is advisable to have printed forms, containing, when filled out, all the information and sketches that will be useful to the plate workman, so as to keep the important points from being overlooked.

These forms should have questions bearing on all matters of any importance, printed on them, followed by blank spaces for written replies and for the diagrams. Then, if the case has been forgotten, or if it has been placed in the hands of an assistant, there is a guide at hand to depend upon. Some of the diagrams are easily made, and convey important information concerning

peculiarities of the face and mouth.   will indicate the

drooping of the corners of the mouth, and these   their

elevation.  the raised corner of the mouth.   represent

the variation in position of lips and maxillary process.  

prominent and receding lips.   square and angular jaws.



profile, and crooked



face.



lip exposure.

side view. The shaded spots indicate depressions. An experienced draughtsman would better make one sketch include all of the features. (See cut at end of the paper.)

In obtaining a correct estimate of the contour of the face, much depends upon the position from which you view the subject, and it is only complete as a study when seen from both sides, in front, above (Fig. H), and below (Fig. I). The views from above and below are of great importance because they enable the observer to form a correct idea of the shape of the bones and of their position.



FIG. H.



FIG. I.

"Every face, however full,
Padded round with flesh and fat,
Is but model'd on a skull."

An art critic will not offer an opinion upon the merits of a piece of statuary before he has viewed it from all points.

Until the Sphinx was subjected to such an examination by an artist, its art problem remained unsolved. His knowledge of the laws of art led him to say that its strong lines and large masses were intended to be seen from below as well as from a distance; and when recent excavations disclosed the foundations of the Colossus, in contra-distinction to its old reputation for the mysterious and expressionless, the face, now seen for the first time in many ages from the position the designer intended, is described as "grandly sublime, conveying to the beholder that feeling of awe one would expect to experience on seeing the face of a divine being."

Since it has taken hundreds of years to learn how to see one stone image, we may not hope to reach perfection at once in our judgment of the human face, or appreciate the importance of artistic adaptation without preparation.

The most important thing for us to learn from art is how to see the defects in the faces of our patrons so that we may determine what to do in order to remove them. Therefore, the study of anatomy, physiognomy, and the philosophy of expression, is indispensable, for it is not only required of us to restore lost form, but we must do it in a way that will permit the face to retain its natural expression under all circumstances.

In the *American System of Dentistry* the article entitled, "Art Relations of Prosthetic Dentistry," closes with this sentence: "To obtain the best results no definite rules can be laid down, as each case varies as do individuals, the art of restoring expression being acquired by observation and experience." In other words, artistic adaptation cannot be taught. No doubt there was a time when the same was said of teaching a system of medicine, inasmuch "as each case varies as do individuals" in the practice of physic also. "Observation and experience" are good, but when they are associated with knowledge obtained by hard study, they are better. Enough information has been collected to demonstrate, first, that the writer of the above mentioned article errs in stating "that no definite rules can be laid down," and that "the art of restoring expression can be acquired only by observation and experience," and, second, that there is a promise that we will have a more rapid and regular system provided for teaching artistic adaptation than is suggested by him.

Every successful dentist applies the "unwritten law" of proportion as the case demands; and he is fortunate if the principles have been taught him, instead of having had to learn by repeated failures how to adapt a denture.

Since we have abandoned the old method of picking up a knowledge of medicine, surgery, chemistry and the other branches of learning which comprise a dentist's education, why not systematize and teach the art idea also, in order that the student may be launched into a less empirical practice? We know that a large per cent. of our students quit studying as soon as they engage in active practice, and if ever they are qualified by "observation and experience," it will be after many years have passed, and when enough opportunities have been offered to see and experiment with all of the irregular forms that exist in and around the oral cavity.

The paper manikin (opposite the title page) may be used to represent some of the unusual differences in proportion, to show the results of neglecting to observe or correct them, and it will be helpful when giving instruction to students or imparting information to patients.

The movable part of the manikin has figures 1, 2, 3, etc., printed on it, and if placed so that figure 1 appears at the opening at the left of the chin there will be a representation of a case

where the adaptation of a set of teeth will require especial care and skill to avoid an appearance similar to what is seen when the slide is moved to figure 4.

A failure of this kind may be avoided if the dentist sees that there is need for unusual construction to produce an effect which he knows in advance must be had, if the face is to be restored to a good condition. Then if a sketch is made showing the relation of the lip to the front of the maxilla, so as to have a constant reminder of the case, he will be certain to select teeth with pins near their cutting edges, so that the body of the teeth may be set in front of the ridge, and bring their edges into proper relation to the lower lip. When the condition described above is found, it is usually accompanied by a long upper lip, which hangs below the superior maxillary ridge.

did not show in a mouth of this formation, but the substitutes must be built on a different plan, therefore teeth with long over-bite must be used so as to bring the incisors into view when the lips are parted. Thus rule after rule may be constructed upon sound basis, the aggregation resulting in a system which can be taught to the coming dentist, thereby shortening his experimental practice and benefiting mankind. Move the slide to figure 8. It is not necessary to state that a rule of proportion has been violated when so many teeth appear, but it is a common fault which arises from a failure to see that a patient has an unusually large mouth and face. If a few teeth are stuck on a sheet of wax placed in the mouth and



FIG. J.

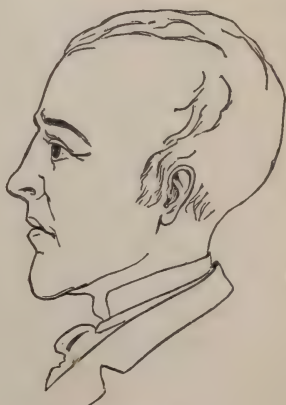


FIG. K.

experimented with until the eye is satisfied, the vexation will be avoided.

The maxillæ are often unequally absorbed, and, in cases where the superior incisors have been retained after the loss of the other teeth, a condition represented by the manikin when the slide is placed at figure 9; sometimes this pendulous front of the upper jaw is the natural formation, and is often accompanied by the pointed upper lip (Fig. J) and angular lower jaw (Fig. K.)

(Adjust the manikin in its seventeen different positions and some exhibits will be made that are not mentioned in this article for lack of space.)

It is strange that time after time the same workmen will make sets of teeth under such circumstances and pay no attention to this condition, forgetting that when they are placed in the mouth their aspect will be something like what is seen when the slide in the manikin is left at figure 10. The common cause for this is that after an impression is filled level with plaster, and after it has been allowed to harden, the wax is removed and the

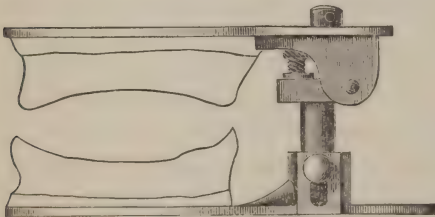


FIG. L.

cast is set level on the articulator (Fig. L), so that the inequality is no longer noticeable, consequently it is forgotten, and the teeth are not set on the model in the same manner as if it was an ordinary case, with the incisors in their proper relation to the facial lines as represented by the front of the articulator. When the denture is adjusted to the mouth the superior incisors will tip in like a squirrel's, and look as if they are longer than the other teeth.

A less common maladjustment, but one which produces the most unpleasant of all of the "false teeth effects," comes from handling casts in the above-mentioned manner that have been taken from cases where the absorption has been one-sided (Fig. g

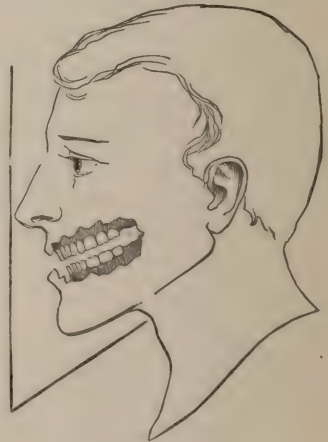


Fig. e.

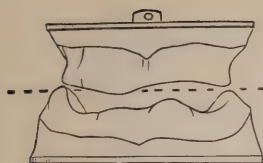


Fig. f.

and 13 of manikin) and when the casts have been placed level on the articulator. (Fig. f). The result is seen when the slide is moved to figure 14. The novice need not have any such experience, for if he will make a sketch of the profile of his patient's face (see Figs. a, b, c). Study the shape of the maxillæ and the angle of the lower jaw (see Figs. K, d, M, e), so that



Fig. a.

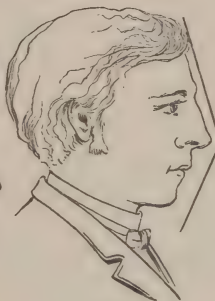


Fig. b.



Fig. c.

their relation to the facial line can be determined and recorded in diagrams, and then set the casts on the articulator to correspond (see Figs. N and f), he will have infallible guides to perfect adaptation.



Fig. d.

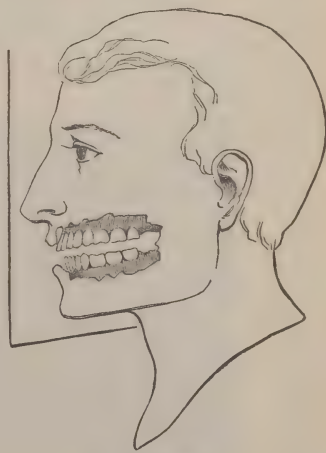


FIG. M.

Deformities and irregularities are numerous, and the human face varies so in size, shape and proportion that it is only by constant care and watchfulness that we can avoid failures. Nothing is too small to be weighed

when examining the conditions of the face and mouth, for it is not always in the face of decided character or marked irregularities that the great difficulties of artistic adaptation will be

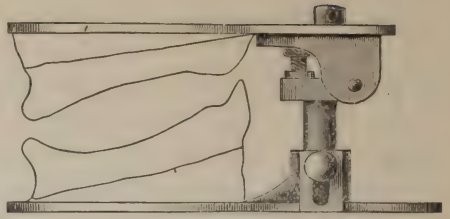


FIG. N.

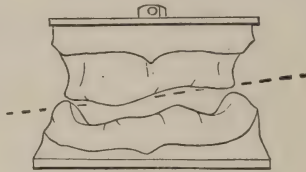


Fig. g.

encountered. Frequently the best skill is brought to bear on one that is neither large nor small, young nor old, light nor dark, where there is little to change and much to avoid. Adopt an ideal head (see Fig. B) as a basis for comparison, and strive to bring the imperfect subject before you up to this standard as far as possible without creating too great a contrast between the different parts of the face.

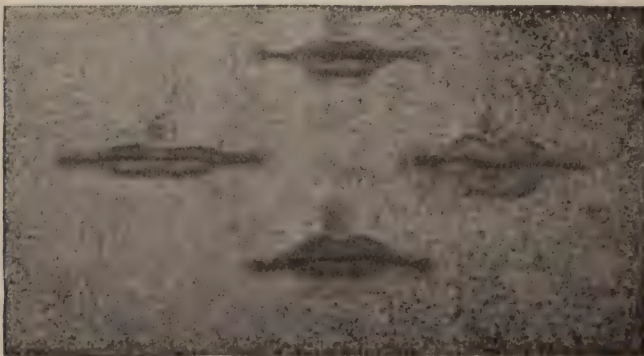


FIG. O.



FIG. P.

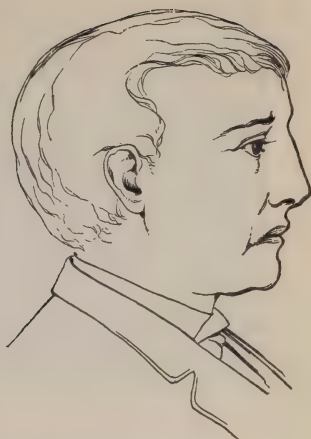


FIG. R.

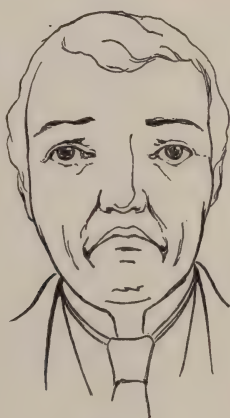


FIG. Q.



FIG. T.



FIG. S.

Notice the relative thickness of the lips (Fig. O). The corners of the mouth may be too high (Figs. J and P), too low (Figs. Q and R), or too far back (Fig. S), causing an unpleasant conspicuousness of the bi-cuspidati when the lips are parted, which may be made worse or better according to the setting of those teeth.

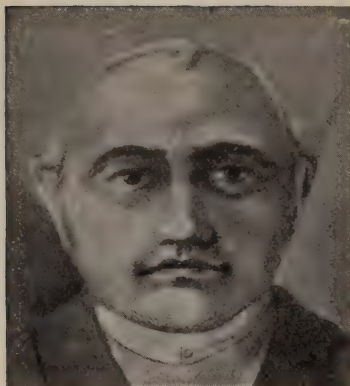


FIG. U.



FIG. V.

Fig. S shows condition mentioned, and Fig. T the side view of a flat face, in which no such difficulties will be encountered, but where other perplexities will arise. Fig. O is copied from "Dr. Rimmer's Artistic Anatomy," and is used here to illustrate the variations in proportion of lip to lip under normal conditions, and which are greatly increased by the loss of the teeth and absorption of tissues.

Do not rely upon the casts to guide you in deciding the shape of the dental arch; but when the impression is taken, throw the chair back so that you can look up into the roof of the mouth and see the shape of the maxillary process, the lips and the face all at the same time; then make a sketch of the conformation and decide whether your blocks of teeth shall be arched or flat.

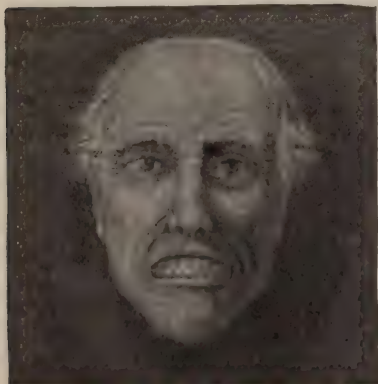


FIG. Y.

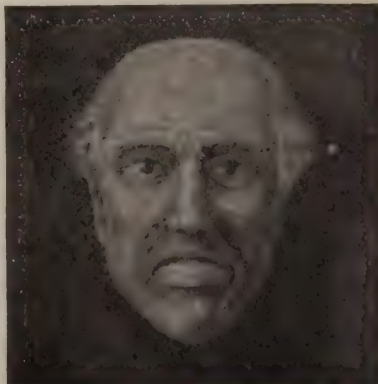


FIG. X.

This, you say, necessitates learning to draw. Well, learn to draw. "Any one who can learn to write can learn to draw." The fact that one man can draw and the other cannot, will often insure the success of the one and the failure of the other in many occupations, and it may be so in dentistry. The talents which will enable a workman to draw, carve and model will aid him in any skilled labor, and will help to elevate mechanical dentistry to the rank of art work.

A dentist should know what kind of teeth a mouth contains before he sees inside the oral cavity, if the type of face is clearly marked. Long, slender, unworn teeth would appear very much

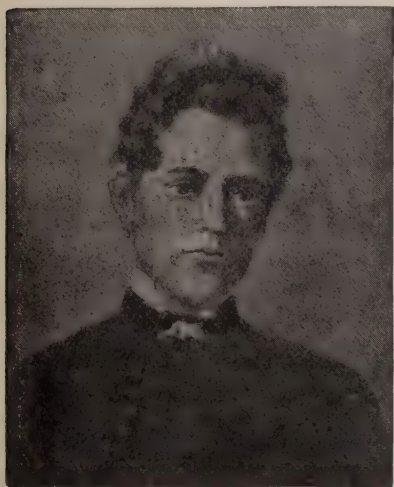


FIG. W.

out of place in a mouth belonging to a face like Fig. U, and short, broad and much-worn teeth would be just as ill-adapted to one that resembles Fig. V, but in a mixed type there is more or less difficulty encountered in basing a prediction. Fig. W. represents a common example, which, though not very marked, affords the beginner an opportunity to imagine the shape, size and position of the teeth, and test his prescience at any time. In all cases calling for restoration the judgment must

be good, for frequently some of the data are not present, and patients do not give information concerning previous conditions with accuracy.

It is not possible at this time to fully illustrate the use of all the principles of art that may be applied to dental practice, therefore, but few of the many benefits that may come from its study have been mentioned; possibly enough to create an interest which will lead to good results, for in mechanical dentistry as now carried on, artistic adaptation has no recognized place, and the successful production of a correct piece of work depends upon chance. The selecting of porcelain teeth is a very important part of artistic adaptation, and a great deal might be said about

their color and its relation to temperament and complexion ; but as there is an abundance of printed matter on this subject, other features, less common, may be mentioned with more profit. False teeth which bear no indication of age, no evidence of decay, no wear, and without any spaces between them, are seen in the mouth of old people every day (Fig. X). They insist on having teeth which they imagine resembled their own when they were at their best, and the dentist's desire to please by making a fine piece of work, stays his hand and prevents the ageing of the teeth by not spacing, grinding, staining and nicking, which, though it removes the smooth finish and the graceful curve, yet makes it less repulsive and more in harmony with the face because the horrible appearance of falsity has been removed. (Fig. Y). Stains on porcelain teeth, imitating decay, may be produced in a few minutes by the use of the blow-pipe and jewelers' enamel. Although there is no art in creating these homely effects, they will aid in giving the teeth an appearance that is suited to the faces of elderly people.

When the eye is trained to detect the slightest variation in form and color, then the monochromatic arrangement of the sets of porcelain teeth that come from like moulds can be broken up, and the slight dissimilarity may be brought about which is seen in mouths that will soon require artificial teeth.

Some years ago one of our leading manufacturers placed upon the market a large number of high relief forms (something like the English teeth, but without their colors and distorted shapes), but the demand was so small that the line was withdrawn from the commercial stock, and is now kept as special.

With the ability to select, and with access to the stocks of our great manufacturers, the dentist may make up com-



PLATE II

binations which will deceive the eye of the expert, but some dentists have no idea of high or low relief, and do not notice the variation in the delicate curves of contour, and a block of teeth which fits the space, is sufficient for them, and their work will often show ill-mated blocks (Plate II, and Plate III, Figs. 4, 5, 6) and plain teeth of quite different forms set side by side.

Imperfect casts are often made from impressions which were taken in wax, soft plaster, or in modeling compound (Plate II), and not resemble the natural teeth (Plate II) in contour, because their sides and corners had cut out straight lines in the impressions when the cups were removed, thereby making it impossible to reproduce their true forms. If an imperfect cast is depended upon as a guide to selection, then expect to see the disparity shown. When partial dentures are to be constructed and a *fac simile* is wanted, it will be well to take separate impressions of the fronts of the teeth; for in this manner the shape of the festoons of the gums and the edges of the teeth are best obtained. (Figs. 1, 2, 3, Plate III.)

PLATE III.



FIG. 1.

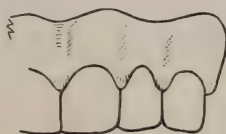


FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.

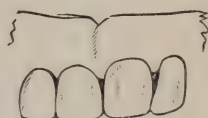


FIG. 6.

The cast is depended upon entirely too much, for there are many things which are important to have before you, which the plaster cast will not set forth. There are horizontal and perpendicular lines on the enamel, slight curves or sharp points on the edges of the teeth, and the gums, too, make quite a study.

The introduction of the new gas furnaces has made porcelain work so much easier and quicker, that modeling, carving and baking will come to be common practice with dentists who have the ability to do the work, and it will be well for all to make the

effort, for professional standing in the near future will depend more upon the ability to restore the lost, than to save the remaining teeth.

Soon all first-class workmen will have to be artists as well, and to their appliances will be added the colors, pallet, brushes, enamel and furnace. There is now an opportunity to make a step forward to a position where the quack will never follow, because his sordid soul cannot rise above a "five dollar set of teeth" to see the beauties of nature and art; consequently he will learn nothing of this part of a dentist's education, but will plod on—

"Untroubled by the wisdom of the wise,
Or hampered by the dint of a desire."



DISCUSSION.

The paper was discussed by Drs. Morrison, Kirk, Chappell, Butler and others. Their remarks were of a general character, reiterating what had been presented in the paper, and coinciding with what had been expressed. A vote of thanks to Dr. Comstock, for the very able presentation of the subject, was unanimously given.

ELECTRICITY AS APPLIED IN DENTISTRY.*

BY DR. FRANK CREAGER, FREMONT, O.

MY DEAR EDITOR:—Yours of an ultimate date came duly to hand, and in answer would say, I have been thinking for a long, long time that it was a duty incumbent upon some one to write

* This is Dr. Creager's reply to a letter in regard to a series of articles on Electricity as applied in Dentistry, for the coming volume of the OHIO JOURNAL.

something about the use of electricity as applied to dental science, and more especially the E. M. mallet and burring engine.

But, as it is a subject which requires so much thought and consideration, and opens such a wide field for study, I have felt a little timid in saying anything publicly about it, and have been patiently waiting for some one to do so through the medium of your valuable Journal.

You are well aware the mallet has already been most prominently brought before the notice of the profession by such eminent men as Drs. Webb, McDonald and others, "who are not dead but gone before," and the good they have done stands as shining monuments in honor of some of the finest operators the world has ever known, and had it not been for the untimely death of these worthy dentists, I think I am safe in saying the clicking of these instruments would have been heard, and their application taught, in at least a majority of our dental colleges.

"We live in a most favorable time. The wonders of electricity affording light and power and instantaneous communication around the world. Who would have thought fifty years ago that London, Paris, St. Petersburg, could be communicated with and a reply received the same day, or that one sitting in his office could converse with another in an ordinary tone of voice, ten, twenty, or even fifty miles away."

With such a deeply interesting subject, and that too in connection with some of the most delicately complicated instruments the profession has ever had, is really more than a plausible excuse for giving you a negative answer.

But, for all that dear editor, I cannot refrain from saying a few words right now, that I am more than ever in love with motive power for operative dentistry, and always have a feeling of commiseration for the poor dentist who still uses the hand-mallet and foot-power engine.

Now, I do not wish to be understood to say that these appliances are the only means by which good results can be obtained, but in the hands of skillful operators they are wonderful adjuncts.

The first application of electricity as applied to dentistry was the burring engine in a very crude form and consisted in the rotating of burs, drills, etc., and later the mallet was introduced, and from that time on improvements became the order of the day.

Both these instruments have undergone radical changes. The engine was a large, heavy and unsightly tool, with a horse-shoe shape magnet. It had a side wheel, and was geared back so as to reduce its speed and give it power, the same as a screw cutting lathe. Speed was of but very little importance then as compared with the present time. I remember of being present at one of our dental societies when the subject of dental engines was being considered, when a gentleman who stands high in the profession as an operator, made this remark: "The engine ought to be reversed; that is, the drive wheel ought to be where the pulley is and the pulley the drive wheel." How was that for retrogression?

It is needless for me to say, that dentist uses a foot-power engine, and when in his office the last time I think he had three of them.

I know now for a certainty what I used to claim then, that *speed* is one of the most desirable features in the dental engine.

Dr. Bonwill says: "Tools cut with more regularity and are less liable to break or slip. It requires less pressure to make them cut, and consequently are less painful."

The difference to the patient is very marked when the tool is placed upon the tooth with a slow or fast motion, besides the safety to the patient from the additional security afforded by positive revolutions, and with that objective point in view, I changed the engine to one of greater speed by making a V-shaped magnet and placing the hand-piece and bur on a direct line with the armature, so that it could be held in the hand the same as the mallet and operated the same as a pen or pencil in making dots upon paper, and this is the engine I have used with much satisfaction in my practice for several years.

It necessitates an entirely different method of operating from the foot power drill, for it enables the operator to stand squarely on both feet while his body is at ease, and as the bur runs with such wonderful rapidity it is not necessary to use pressure in order to have it cut, as it would heat the tooth and consequently cause much pain, but just touch, touch or tap, tap as it were upon the enamel or dentine with a well shaped drill or finely stoned bur, and you will accomplish more and with much less pain to the patient than by any other method.

I have also made a few minor changes in the mallet, but will

not stop to write of them now, suffice it to say I have substituted the rubber handles with steel shanks, in place of the solid steel pluggers as formerly used and trust they will soon be placed upon the market for the benefit of the profession generally. With them the blow is more elastic and pleasing to the patient and the gold seems to weld with more uniformity.

The mallet, with all of its modern improvements and necessary adjuncts, is the nearest approach to an "ideal" condensing instrument we have ever had, and yet in the hands of some it has proven a failure.

I would advise those who contemplate adopting its use to get a copy of Dr. Webb's notes on operative dentistry and study its parts thoroughly, for I can assure you these instruments must be well understood in order to be appreciated. Some will say any one can learn the electric mallet in a very short time, which probably is the fact to a certain extent, but to handle it skillfully requires lots of experience and a good deal of determination. *First of all learn the battery.*

A BIT OF HISTORY.

COMBINATION OF CONTINUOUS GUM AND RUBBER.

BY DR. L. P. HASKELL, CHICAGO, ILL.

THE December JOURNAL contains an article which brings to mind an occurrence of twenty-five years ago.

I published a *People's Dental Journal*, of which Dr. Allport was the editor. A dentist of this city obtained a patent for what he called "Combination Work," which consisted of what is described in the foregoing article. As it was well known that the same thing had been made by ourselves and others for several years, Dr. Allport addressed letters to many dentists, among others, Drs. J. Taft, John Allen, W. B. Roberts, C. W. Spaulding, B. W. Franklin, J. Smith Dodge, D. S. Goldey, G. V. N. Relyea, and E. F. Wilson, soliciting replies that they had made the work for several years, more or less, but had abandoned it as worthless. I will quote the replies from three which will give the general expression of all. Dr. J. Smith Dodge says:

"We certainly made the work in question three years ago, and I should say made at least twenty-five cases; but we have ceased to recommend the work. The difficulty and expense of repairing the continuous gum, involving the removal and *replacement* of the rubber, are serious objections."

NEW YORK, Sept. 11, 1863.

J. SMITH DODGE.

Dr. W. B. Roberts says:

"I have now on my table a piece of this work made five years ago, having used it to a limited extent and found it very objectionable, for if a tooth chanced to be broken, the continuous gum must be mended, a new impression taken, and the work re-vulcanized. It is the most impracticable work I have ever undertaken."

NEW YORK, Sept. 11, 1863.

W. B. ROBERTS.

Dr. Goldey says:

"I have made the style of work for four years, finding it troublesome to make and *extremely difficult to repair*. I made but little of it. *Specimens* of this work are beautiful, but like the devil's tail, painted blue, are more ornamental than useful."

OSWEGO, Sept. 18, 1863.

D. S. GOLDEY.

From the foregoing it will be seen that this work was made by a considerable number of dentists twenty-five to thirty years ago, and abandoned by all as worthless on account of the difficulty to the dentist and expense to the patient of repairing a broken tooth.

Since that it came to light again in England, when Dr. Verrier introduced it to sell his gas furnace, the latter being as great a failure as the work.

Then a few years ago a dentist in this country introduced it again as a new thing, in order to make a sale for another gas furnace.

And now it comes to the front again, the same old thing, but with the same serious objections to use, for no patient wants to pay the cost of a new rubber plate every time he breaks a tooth, even though the dentist would repair it for that, especially if it came into hands of a dentist who did not make continuous gum. The less one makes of this work the better it will be for him.

REPORT OF CASES IN ORTHODONTIA.

BY E. H. ANGLE, D.D.S., MINNEAPOLIS, MINN.,

Professor of Histology and Orthodontia, Dental Department, University of Minnesota.

(Illustrated by W. J. Brady, D.D.S.)

CASE No. 4 was referred to me by Dr. Merrill, of Albert Lea, Minn., and was that of a lady of 38. By referring to Fig. 2 it will be seen that both superior lateral incisors were inlocked. This form of dental irregularity, either of one or both sides, is very familiar to all practitioners. The inlocked teeth were moved out by the simple but efficient devices represented, both of which have been found to work admirably in a large number of cases, in my own practice, and by others in this city. The one for moving the right lateral consists of a delicate strip of nickel silver rolled to No. 36 American standard wire gauge, and about one-eighth of an inch in width. A loop of this material is slipped over the inlocked tooth, the outer ends resting on the edges of the central and the cuspid, the strip being cut as short as will answer the purpose. Two short pipes are soldered to this strip, one at either end, one transversely and the other horizontally. Accurately fitting these little tubes is placed Angle's traction screw (in this case used for pushing). This appliance is shown in detail at 1 and 2 in the small accompanying cut, Fig. 1. (NOTE.—The cut, through mistake of the engraver, does not represent the traction screw perfectly. It is shown with a hook instead of a right angle at the end.)



FIG. 1.

When the appliance is to be adjusted the screw is bent to conform to the curvature of the arch, and is slipped into the tubes; the loop is placed over the tooth to be moved, and burished to accurately fit the lingual surface, as shown in Fig. 2. When in position it occupies but little space, and the nut is very accessible for tightening. It will be seen that on tightening the tendency is not only to move the tooth out of inlock, but to widen the space at the same time that it may move outward more readily. In the case in question, the patient being a very intelligent lady, she was given a small wrench with directions to tighten the

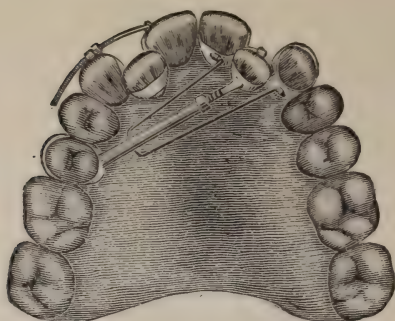


FIG. 2.

nut often enough to maintain a comfortable pressure, and if the movement progressed as it should, to return for inspection of the case in eight or ten days. Four days later she returned, and to my great surprise I found the tooth to be entirely out of inlock and in perfect position. This exceedingly rapid movement (for a patient of her age) at first caused me some alarm lest damage had been done, but on careful examination and testing found no indication of any injury, either to the pulp or surrounding tissue, and to my repeated questioning as to soreness occasioned, found there had been none, and at the time found only slight tenderness on percussion. The appliance was left in position (without further tightening) for several days, when it was removed and the tooth retained by the device shown in Fig. 3, which was worn for several weeks. The other lateral was moved out by means of the angle jack-screw. The base of this was rested against the opposite second bicuspid and firmly soldered to a band encircling and cemented to the same. The point of the jack-screw rested in a suitably formed slot in a similar band encircling and cemented to the tooth to be moved. To the labial surface of this band a small pipe was soldered in anticipation of retention. We wish to call especial attention to the manner in which the *anchorage was reinforced*. The teeth adjoining the lateral were carefully banded and piped on a line parallel to the gum. In these pipes were hooked the ends of a piece of gold wire bent in the form of a loop, which loop was hooked over a spur soldered to the pipe of the jack-screw. By such arrangement the tendency to push the central and cuspid out of position, or rotation of the same



FIG. 3.

as the lateral moved out was wholly obviated, and the anchor tooth at the base of the jack-screw relieved of much pressure.



FIG. 4.

The device is shown in detail in the small engraving, Fig. 4. A shows the jack-screw, B the spur on same, C the reinforcement wire, and D the various bands. A ligature of strong silk might be used instead of the gold

reinforcement wire, in which case banding the cuspid and central, would be avoided, but this would be less accurate, and unnecessary soreness might be occasioned by the ligature coming in contact with the gums. The lady was given the wrench in case of this lateral, and in eight to ten days it was moved to position, she occasionally coming for my inspections. It was retained in the usual manner, as described in a former article, and as shown completed in Fig. 3:

DENTAL TRANSPLANTATION AND REPLANTATION.*

BY H. A. SMITH, D.D.S., CINCINNATI, O.

In looking up the history of Dental Transplantation and Replantation we find that they have quite a respectable antiquity and were probably practiced as early as any operation in dental surgery. Ambrose Pare who died near the close of the sixteenth century, mentions in his work cases of transplantation of natural teeth; he also describes in detail the operation of replantation.

As early as 1686 there is recorded a definite opinion as to the practicability of the plantation operation; thus Thos. Budmore in that year says, "Replantation, I regard as easily done though of doubtful utility." "The practice of replantation," he continues, "is not only pernicious, ineffectual, and dangerous in general, but immoderately expensive." His methods of preparing a tooth for replantation did not differ materially from those now in use. He recommended that the root canals be filled with gold or lead.

M. Patence of London, in 1774, calls attention to the "practice of extracting the teeth of one person and replacing them in the sockets of another." He says, "It must certainly be highly

* Read before the Ohio State Dental Society, Cincinnati, October 17, 1888.

offensive to the Almighty, for he never gave them for that purpose, neither are they their own to dispose of." He also records a case in which syphilis was transmitted by transplantation. Speaking of the preparation for transplantation of a dried tooth taken from a skull, he says, "Lay it in water for three months to soak that it may open the pores, then put in hot water for three hours." From this it will be seen that even at that date quite an effective method of sterilizing a tooth was in practice.

Mr. Bell in his edition of Hunter's "Treatise on the Teeth," erroneously attributes the origin of the practice of transplantation to his author. Hunter it appears had frequently transplanted teeth and describing what he considered the manner of attachment, says: "The success of the operation is founded on a disposition in all living substances to unite when brought into contact with one another, although they be of different kinds of structure." He demonstrated this theory by transplanting a freshly extracted tooth in a cock's comb. After some months the cock was killed and an examination made of the tooth *in situ*. He found the vessels of the tooth well injected and the external surface of the tooth firmly adherent to the comb—a union very similar to the natural one in the gum. This would indicate that the modern theory of revivication of the tooth is a revival of and not an advance on the old Hunterian theory.

Surgical operations are governed somewhat by fashion, and since transplantation was first practiced—now certainly more than 300 years—it has had the characteristic periods of favor and disfavor. In our own experience we have seen its rise and fall a number of times. Transplantation and the kindred operation of replantation are justifiable and valuable in certain emergencies, and since we now have at our command ready methods of antiseptis, together with a better understanding of the physiological and pathological conditions attending the operations, no trained dentist need hesitate to perform them in suitable cases. But there are now so many excellent methods of replacing lost teeth with artificial substitutes, that there is not that necessity of resorting to the plantation operation that there once was.

The operation of restoring to their sockets teeth that were either accidentally displaced or removed for cause has been practiced several centuries. Doubtless parents have always been instinctively prompted to put back in the sockets their children's

teeth when displaced by accident. All of us have had such cases brought to our notice, and when we consider that the pulps in these teeth had not been removed it is remarkable how enduring and comfortable has been their retention. It is still a question whether or not the pulps of teeth that have been immediately returned to their sockets in young and healthy subjects retain their vitality. Divided nerve tissues are prone to unite under favorable circumstances, but it would seem that the conditions brought about by violently severing the pulp at the apex, are most unfavorable for a reunion. The seemingly healthy state of these restored teeth is often misleading, and in a majority of such cases the pulp will sooner or later take on the putrefactive stage.

Perhaps no one reports a larger percentage of success in replantation than does Magitot, of Paris. He has given us a record of 63 cases out of which only five had failed.

Dr. Thomas, of Detroit, reports nearly 500 cases of replantation, and says that many of them are doing good service. Yet he expresses doubt as to the permanent benefits to be derived from the operation.

Dr. G. W. Weld in the *American System of Dentistry* reports 80 of replantation. After carefully watching these cases he concludes, that replanted teeth readily attach themselves and become firm in their sockets; that they remain useful for varying lengths of time, dependent upon local and systemic conditions; that a full vital relation rarely occurs; that death of the peridental membrane, cementum and dentine speedily follows; that, owing to the death of the tissues and consequent breaking up of the attachment, such teeth are lost by gradual loosening as the result of acute inflammation set up about them; that, in view of possible danger and the certainty of ultimate failure, the practice of replantation, except in cases in which teeth are displaced by accident, is not justifiable.

I lately received from Dr. A. G. Weber, of Havana, Cuba, an interesting report of 14 cases of transplantation and 12 cases of replantation. The history of these cases is the usual one (when the operations are made by careful dentists). For a time varying from a few months to five or seven years these teeth were retained with comparative comfort to the patients. Case XV well illustrates the power of riches: May 25, 1880, trans-

planted a superior central incisor which was purchased by the patient at the price of \$102, Spanish gold. It had brilliant success until February 16, 1885, when it had to be extracted on account of absorption of the root.

DISCUSSION.

DR. BERRY: History repeats itself. Solomon said so three thousand years ago, and the statement is as true now as it was then.

The first thing on the announcement of this meeting is 1788, and opposite is 1888. It required some study to understand the meaning of these figures. But it is evident that transplanting teeth is the only subject in the programme to which they can have reference. About 1788 transplanting teeth was practiced by many dentists in Europe and in this country. Among them was the celebrated John Hunter, who, of all the dental authors of distinction, is the only one who recommended the transplantation of teeth.

In the winter of 1785 and 1786, Mr. Lemayeur in Philadelphia, transplanted one hundred and seventy teeth, as he told Dr. Gardette. Dr. Gardette says, that "of all these transplanted teeth not one succeeded," although "some became firm and lasted, more or less, for one or two years," and that he extracted at least fifty of them. The want of success and danger of communicating disease brought this practice into disrepute. Dr. Gardette relates two cases of Dr. Lemayeur's patients, who had syphilis communicated by the transplanted teeth, from which they died.

Now, a century later, comes a revival of the practice of transplanting teeth, by Dr. Younger's process, differing somewhat from that of the former time, but equally dangerous as to the transmission of disease.

Why are not women carried through child-birth now as was done some years ago by Sir James Simpson, and other eminent physicians, by the use of chloroform? Simply from the danger attending it. But the proportion of fatal cases from the use of chloroform was greatly less than from transplanted teeth.

From the period of the revival of transplanting teeth by Dr. Younger, I have spent considerable time studying to devise means to insert teeth on Dr. Younger's plan without danger of trans-

mitting disease. Probably porcelain teeth, with the parts to be in sockets ground and closely fitted, would be retained, and if the inserted portion was wood, it would undoubtedly be held in place.

DR. FLETCHER: In explanation of Dr. Smith's statement, that I prefer dry teeth for implanting in comparison with those having been preserved in a fluid, I would say, the dry periosteum is preferable in my estimation, for the reason that the cells composing the structure of that membrane, would probably imbibe any fluid in which they were immersed any length of time, and this I think would be fatal to their life, supposing it to be true that they can revive when the tooth is implanted. Whereas a dry cell when placed in its natural environments could imbibe only its natural fluids, and it seems probable that these cells could revive only when furnished with these life-giving elements, and these at their proper temperature, all of which are found in the blood.

We know it to be a fact that some vegetable cells lie dormant for an indefinite number of years and then revive, producing their kind when surrounded with the proper elements and temperature, but the main requisition of such a dormant condition is that the cells be kept perfectly dry. To immerse it in any kind of fluid for even a few hours would destroy its power of revivification.

Now, since cell life—from our present knowledge—seems much the same whether animal or vegetable, does it not seem probable that we do have animal cells which may have this same power of dormant life; if so, they would most likely be controlled by much the same conditions. If it be a fact that dried teeth and those having been preserved in a fluid, could both become equally firm and useful as an implanted tooth, it would to me be a strong proof that the peridental membrane did not revive but acts only as a protection to the root.

As to antiseptis, I believe all the antiseptis these membranes need can be given at the time of the operation by immersing the tooth for a few moments in a one to one thousand solution of bichloride of mercury, and this while the operation is in progress.

There is one point in the manipulation of these cases I did not mention, which seems to me to be of importance, and that is,

while drilling the socket, or after its completion, the chips should not be washed out, but left in to form nuclei, for the growth of new bone-cells. Each chip of bone, however small, must contain either a whole or part of a bone corpuscle, which corpuscle I believe will become a nucleus for new bone material, in the same manner that very minute particles of the skin do in skin-grafting.

Now, why may not these small particles of bone perform the same office in this operation that the small particles of skin do in skin-grafting, and if they do we certainly shorten the time of recovery, and probably secure the chances of success. As to the necessity of washing the new socket with an antiseptic fluid it would seem ample to have the hands and instruments thoroughly sterilized by an antiseptic fluid before beginning the operation, and the tooth treated in the same manner; certainly no septic germs other than those which may be in the blood of the patient could be found in the socket.

In a paper on implantation read before the Mississippi Valley Dental Association last March, I gave some evidence of the revivification of the peridental membrane. Nevertheless, I believe the bone chips left in the socket in these cases, to be of as much advantage in the repair of lost tissue and their rapid recovery, as the presence there of the peridental membrane on the tooth. However, at our present state of knowledge, I believe it the safe plan to implant only teeth whose roots are covered with membrane.

DR. ARNOLD: I have had some little experience in replantation. I have one case that I would like to speak of in particular. It is now of ten months' standing. After my return from the Congress at Washington, where I saw some of Dr. Younger's clinics, some enthusiastic gentleman came to my office one day to have a tooth reconstructed—a lateral superior incisor. It struck me immediately that there was a good chance for implantation if he would submit to the operation, I thought favorably of it. I spoke of it in this way and said that as soon as I could get a suitable tooth I would perform the operation; and he said I have the tooth, I lost it ten years ago; I have it somewhere at home; I will make search for it and bring it to you. He brought the tooth and I placed it in an antiseptic solution of mercury and finally inserted it. The tooth was implanted, ten months have

elapsed, and to-day the tooth is apparently as good as any other tooth he has. It was the only tooth he had ever lost. To-day that tooth is in good condition, and from all indications my conclusions are that there is an ancyhlosis. For this reason I prefer a dry tooth and I shall continue to make operations that way. There is one thing about a dry tooth, one that is perfectly dry becomes friable and of course the preparing of such a tooth must be done very carefully. According to my theory I cover the tooth at the root or periosteum with the best of mucilage, so I can protect it while handling, then I dry the tooth and work very slowly. As to the age of the tooth I think it would be better to have a tooth from a young person.

In the replantation of teeth my experience has taught me that they become solid in about three months. The color of the tooth while not very much different at the time of implantation, a slight difference can be seen and the chances are ultimately perhaps that it will become thoroughly imbued with the pigment that we find in the normal condition. Now I was very careful in operating, at least I used my best efforts to that end. I think the proper requirements—indeed the necessary requirements—in all cases of that kind, should be to begin with a good systemic treatment of your patient. The other requirement is perhaps the most important after all—antiseptics. I need not only to immerse the tooth in a solution of one and a half per cent. of mercury, and syringe the socket with the same solution, because I regard it as highly important that the socket as well as the tooth be placed in an antiseptic condition. I am a great believer in antiseptics. I think that modern surgery is a success as practiced to-day in all the very elaborate surgical operations, because of the use of antiseptics. While I am convinced that the antiseptic practice very much lessens the risk of any operation, I should be very particular to ascertain when a case presents itself to discover if possible whether there be any specific trouble in the patient. In this instance the tooth came from the same patient, and after ten months there is not an iota of any degeneration. On the contrary there is every reason to believe that it is improving all the time. Now, there is union; if there were not union, I do not think it would support it more than it would a peg.

DR. WRIGHT: We have, we may say, two sorts of knowledge in our profession, one is the clinical and the other is the scientific.

On this question of implantation of teeth we are in the infancy of practice, and I think it would be well to experiment in order that we can be in accord in regard to the operations and thus acquire a clinical knowledge. So far as our scientific knowledge goes, we are still at sea, and we are possibly not correct at all. Still operations can be performed and successfully performed without this scientific knowledge. Surgeons have bandaged fractures and the bones have united so as to enable the patients to use their limbs perfectly well.

One point referred to by Dr. Fletcher, in regard to leaving chips in the socket. It seems to me we are all off in regard to that. If our modern ideas or theories are correct in regard to the formation of the bone, I suppose that these chips do not nuclei in the formation of bone or cartilage.

Now as far as the clinical knowledge is concerned, it seems to me that we are doing splendidly, and I think Dr. Fletcher, who has had the courage to go into this first, and some others, should have their names honored.

DR. BELL: I have had very little experience in the replantation of teeth myself, and not any in implantation. I was present at the Northern Ohio Society a few years ago and asked Dr. Thomas about transplanting teeth, and he said he was at one time very enthusiastic in regard to the matter, that he had treated altogether 500 cases, and that two years afterwards he had seen between two and three hundred cases and almost all were failures. He also said that of the number treated, practically all would be failures.

DR. BUTLER: For many years in surgery, especially in cases of a fracture, various means have been adopted whereby these fractures may be repaired or assisted in the reparation, and some recent experiments have been made by implanting bones into these fractures for the purpose of assisting Nature in forming the union. Now if that be a practical thing, I cannot see any inconsistency in leaving these chips that are spoken of by Dr. Fletcher.

DEATH FROM ETHER.—A woman, about fifty years of age, died recently from ether administered by a dentist in Pawtucket, R. I., for the extraction of a tooth. Dr. True, Dr. Stanley, and Medical Examiner Fuller, upon consultation, decided that death had been caused by heart disease.

Compilations.

"Gather up the Fragments."

SOME AFFECTIONS OF THE GUMS.

BY FRANK LANKESTER, L.R.C.P., M.R.C.S., L.D.S., ENG.

(Continued from page 582, December, 1888.)

Polypus or *Simple Hypertrophy* of the gum comes next on our list. This is purely a local affection of the gums alone, quite apart from the periosteum. It is generally associated with uncleanly habits, the presence of tartar or some other form of irritation, and is usually most marked along the borders or margin of the gums, and especially the interdental portions. It consists in a simple hypertrophy of the gum tissues, and is brought about by some long-continued irritation. The gums may be so increased in size as to nearly cover the crowns of the teeth, and it is most commonly met with, and most pronounced, in the front part of the mouth. The treatment as a rule is very simple, and consists in scarifying the gums and getting rid of the irritating cause, *i.e.*, by thoroughly cleansing the teeth, removing all tartar, and washing the mouth occasionally during the day with a strong solution of tannin or other harmless astringent, to which may be added a very small quantity of Condyl's fluid. The gums will then, usually, soon recede to their normal size and condition. I saw a case, yesterday, which Mr. Humby treated for a long time before curing his patient. This was caused in first instance by wearing a regulation plate. The hypertrophy was so extensive and rapid that the wearing of the plate had to be discontinued.

A more truly polypoid form of this same affection of the gum may be very frequently seen in connection with almost any large cervical cavity. It occurs as a small pedunculated mass resembling the gum tissue, and more or less fills up the cavity. It is due to the constant irritation caused by the rough edge of the cavity coming into contact with the gums. The irritation leads to a slight chronic inflammation and consequent overgrowth of the

existing gum tissues (*i.e.*, hypertrophy), in which the true mucous membrane elements take part. The tumor is usually tender and at times painful. The treatment, if any be required, consists in removing the cause, either by filling the cavity or getting rid of the tooth or root with its projecting sharp edge. When nothing more than simple excision of the growth is performed, it almost always returns. This is well illustrated in a case which Salter relates, in which the hypertrophied mass was about half as large as a chestnut, and much resembled ordinary gum in appearance. At first sight it might very easily have been mistaken for an epulis. It arose from the portion of gum situated between the three separated roots of an upper first molar and was attached by a short pedicle. It was first excised, the stumps were then removed, and there was, of course, no recurrence.

Papillary Growths come next on our list. These may occur on the gums, but are exceedingly rare. They consist simply of hypertrophied papillæ, and are really unimportant. Caustics sometimes arrest or cure the growths, but a free excision is usually the best treatment, though even after this they sometimes tend to recur.

Warty Growths are also very rarely met with on the gums, but they do occur, and much resemble the ordinary cauliflower excrescences so frequently seen on the hands, etc. They are quite innocent, but there is often very considerable difficulty experienced in getting rid of them, just as is the case when they occur on the hands. At the same time, there is the liability for them to take on a malignant character. They are of a pale whitish color, and contrast very strongly with the surrounding red gum.

Vascular Growths.—Another very uncommon affection is a nævoid or vascular tumor of the gum. Such usually occur in adult or middle life, and are most commonly situated in the upper jaw, between the incisors and canines. They are generally of small size, about as large as a pea, and are often more or less pedunculated. They tend to increase in size; they are compressible, and can thus be reduced to the level and color of the gums. They are of a bright red color, and bleed readily on pressure, etc. Hemorrhage is indeed their most important symptom; it usually occurs at night, when in the recumbent posture, and consists in a general oozing from the whole surface of the growth. In rare cases this may be very severe, and on this account they may

require removal, though they are perfectly innocent, and do not return when carefully eradicated. This is best done by freely excising with the knife, including, at the same time, a small portion of the subjacent vascular and spongy bone. Cold and pressure will usually check any hemorrhage. Any subsequent sprouting granulations should be touched with nitrate of silver. Before resorting to excision, you might first try the effects of ligating the growth, or of destroying it by caustics.

(To be continued.)

Editor's Specials.

"Write the Vision and make it plain."

VOLUME IX.

WITH this issue we begin the ninth volume of THE OHIO JOURNAL OF DENTAL SCIENCE. From the many kind testimonials received during the past year, and the goodly list of new subscribers, we have reason to believe that our efforts have not been fruitless, and we hope to make the coming volume still better. We propose to give original articles of special merit and besides these to give our readers benefit of all the best things presented to the profession through other channels. We thank our patrons for the kind favors of the past and will strive through the medium of THE JOURNAL to make it a continuous Happy New Year to all.

PORTRAIT OF DR. GEO. W. KEELY.

IN the February, 1889, JOURNAL we will have an excellent engraving of the late Dr. Geo. W. Keely, of Oxford, Ohio, as a frontispiece. In addition to this, a sketch of the life and doings of this generous and good man will be prepared by our senior editor, Dr. Geo. Watt, who was for many years a warm and personal friend of the deceased.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

ANTIPYRIN IN SOLUTION applied to the bleeding cavity left after extraction of a tooth is reported to have effectually arrested the hemorrhage after perchloride of iron had proved unsuccessful. —*Phar. Record.*

OXYCYANIDE OF MERCURY is recommended as an antiseptic superior to all others. It is less irritant than sublimate, less readily absorbed, and does not attack, except slightly, the instruments. —*Cin. Med. Jour.*

A NEW USE FOR ETHER DURING ANÆSTHESIA.—DR. H. A. HARE writes to the *University Medical Magazine* that if, during anæsthesia, respiration stops, he has found that in a large number of instances, both in man and in the lower animals, the free use of ether poured upon the belly causes so great a shock, by the cold produced by its evaporation, as to cause a very deep inspiration, which is often followed by the normal respiratory movements.

THE DEPOSITION OF ALUMINUM.—Aluminum is one of the most difficult and uncertain of metals to deposit electrolytically. The following recipe is given by M. Herman Reinbold, who states that it furnishes excellent results: 50 parts by weight of alum are dissolved in 300 of water, and to this is added 10 parts of aluminium chloride. The solution is heated by 200 degrees F., and when cold 39 parts of cyanide of potassium are added. A feeble current should be used.

TREATMENT OF WARTS.—Where creosote-salicylic plaster cannot be had, Unna recommends the following:

| | | | | | | | |
|---|----------------|---|---|---|---|---|----------|
| R | Acid salicylic | - | - | - | - | - | 3 iij |
| | Creasoti | - | - | - | - | - | 3 vj |
| | Cera | | | | | | |
| | Adipis | - | - | - | - | - | aa q. s. |

Make a firm ointment which will adhere to the skin.—*Monatshäfte für Praktische Dermatologie.*

ONDONTIANA.—It is during the eruption of the temporary teeth one observes troubles of a diverse nature, such as salivation, redness, (blushing), heat, and swelling of the gums, aphthæ, ulcerations, slight cough, diarrhœa, convulsions, fever with agitation, etc. Then interfere and make, if there is reason, an opening for the eruption of the teeth. When there is fever, give a solution of bi-carbonate of potash combined with a little citric acid, to which add some drops of tincture of henbane, in case of agitation. —DR. MACARIO in *Nice Medical*.

ETCHING ON STEEL.—For etching on steel use a ground made of asphalt and beeswax equal parts melted together. Warm the article, and even the ground with a dabber made of cotton, in a silk cover. Scratch the figure, and bite with nitric acid mixed with three or four parts of water. If you wish to stamp the figure, put a little linseed oil with the above ground to make it as thin as printer's ink. Print with a rubber stamp, and cover parts not required to be bitten, with a varnish of asphalt and turpentine.—*Scientific American*.

HYPODERMIC INJECTIONS OF ANTIPYRIN.—DERLON claims that aqua lauro-cerasi is an excellent vehicle for a hypodermic injection of antipyrin, since it lessens the pain of the injection, though it adds to the pain of morphine solutions. Derlon uses the following formula :

| | | | | | |
|------------------------|---|---|---|---|------------|
| Antipyrin | - | - | - | - | 30 grains. |
| Hydrochlor. of cocaine | - | - | - | - | 1 “ |
| Aqua lauro-cerasi | - | - | - | - | 1 drachm. |

—*Revue Gen. de Clin. et de Therap.*

APPLICATION FOR KEEPING THE HANDS SOFT AND SMOOTH.—PROFESSOR VALENTA, in *Rundschau* (Prag), recommends a simple procedure. The hands, after washing and drying thoroughly, are well anointed with *unguentum emmoliens*—cold cream; a small quantity of *spiritus sapontus* is poured in the hollow of one hand and this rubbed vigorously until a lather is produced. The fatty lather is merely rubbed off.

This method has been employed in the professor's clinic for twenty years and in consequence his hands are much admired for their smoothness and natural color.

COPPER AMALGAM FOR REPAIRING RUBBER PLATES.—DR. J. W. WHIPPLE says: When teeth become loose on rubber plates, or

are torn entirely out, without injuring the tooth or pins, the following method will be found very satisfactory:

With an inverted cone bur of the proper size, counter-sink an opening in the rubber at the head of each pin, not from above, but *behind* the tooth, just where the pin originally was; fill this cavity with copper amalgam and press the tooth firmly to place. The result is simply an enlarged pin head which will not pull out, and the plate will show no evidence of having been repaired.—*Archives.*

DEVITALIZING PULPS WITHOUT PAIN.—DR. E. E. SHATTUCK says: In regard to my form of nerve paste: I take arsenious acid, put it into an ounce vial and pour creosote (C. P.) on the arsenic—a little more than will cover it.

When you wish to use the paste, tip the bottle so you can reach the arsenic and apply directly to the pulp; or you may take a pellet of cotton and apply that way. The paste prepared in this way is ready for immediate use, and will stop the most violent toothache (when wishing to devitalize the pulp) in about five minutes. I believe other drugs to be a detriment to the mixture.—*Archives.*

TO TIGHTEN LOOSE TEETH.—When the teeth are loose a teaspoonful of a lotion prepared according to the following formula, in a wineglassful of warm water, used every morning as a mouth-wash, will restore firmness to the gums:

| | | | | | | |
|---------------------|---|---|---|---|---|-------------|
| Tannin | - | - | - | - | - | 1½ drachms. |
| Iodide of potassium | - | - | - | - | - | 12 grains. |
| Tincture of iodine | - | - | - | - | - | 1 drachm. |
| Tincture of myrrh | - | - | - | - | - | 1 drachm. |
| Rosewater to | - | - | - | - | - | 6 ounces. |

Dissolve the tannin and potassium iodide in the rosewater; to this add the tinctures and strain.—*Chem. and Drug.*

NICKEL.—The only nickel mine in the United States that is at present successfully worked is in Lancaster County, Pa. Some 20 years ago a man, walking along the track of the Pennsylvania railroad, noticed that the ballasting of the road was being done with some rather unusual stone. He recognized its character, quietly inquired where it came from, and then as quietly purchased a part of a farm, taking good care to include the stony land. This man was Mr. Wharton. The stony land has been

worked ever since, and they have gone down some 300 feet. The length of the lode is about 25,000 feet. Each month about 500 tons of ore are taken out, and 200 men are employed in the mine and its surroundings.—*Phar. Record.*

NECROSIS OR CARIES?—DR. C. B. KNOWLTON writes: In your December issue you copy from the *Western Dental Journal* a reported case of necrosis of the bones of the face of a child. In reading the article I was impressed with the thought that in the case there is a mistaken diagnosis. May not the condition there met with have been *caries* of the bones and not necrosis? Caries of the bones is analogous to ulceration of the soft tissues. During my long dental practice I have had under my charge three cases of caries of the facial bones in adults, ulcerating teeth being the cause in each case. The cases were all fatal. The caries had become very extensive before the real trouble was suspected and not until I was consulted did the patients think they had anything more serious than an ulcerating tooth. The broken up condition of the bones and the character of the pus are alike in all the cases.

OXYCYANIDE OF MERCURY AS AN ANTISEPTIC.—The comparative merits of oxycyanide of mercury and corrosive sublimate are to be summed up as follows: Its solution has a slightly alkaline reaction, and precipitates albumen only slightly. It is less irritant than solutions of corrosive sublimate, and solutions of the chemical 1-1500 do not attack, except slightly, the materials used in surgical instruments. When tested by the power of preventing decomposition of soup, its antiseptic power proved to be six times greater than that of bichloride of mercury; whilst tested as to its power to destroy the micrococcus pyogenes aureus, the advantage lay somewhat in favor of the sublimate, 1-1400 of the former to 1-1300 of the latter. When employed on suppurating surfaces, or to render mucous surfaces antiseptic, it furnished much better results than the bichloride, because of its much greater tolerance by the tissues and of the small amount absorbed thereby.—*Comptes Rend. de la Soc. de Biol.*

EPILEPSY FROM DENTAL IRRITATION.—DR. ALBERT P. BRUBAKER, of Philadelphia, reports a case of epilepsy caused by dental irritation.

A girl of nine had three teeth extracted for toothache. The

same afternoon epileptiform convulsions set in, and continued for four months, amounting to forty in all. A carious molar in an inflamed lower jaw was removed with restoration of general health and a cessation of attacks up to the time of reporting the case, eleven months. The author publishes fifteen other cases from various sources. In nine cases removal of carious teeth cured the disease; in two cases removal of carious teeth and lancing the gums over coming teeth; in one case removal of carious teeth and a piece of necrosed bone was sufficient; in one case simply lancing the gums sufficed; in one case the relief of an overcrowded state of the teeth, and in one case simply a change of artificial teeth brought about a cure. In all these cases the existence of genuine epilepsy is vouched for, the attacks in some cases being severe and frequent, and in one case there being a dementia, which disappeared after operation.

TRIBROMPHENOL AS AN ANTISEPTIC.—GRIMM claims considerable antiseptic value for tribromphenol, which is separated by the action of bromine on carbolic water solutions in the form of soft, white crystals, fusible at 95 Cent. Tribromphenol, according to Grimm, does not irritate the mucous membrane of the mouth, pharynx, or nose; nor does it effect the skin, even near wounds. When the powder is sprinkled on recent wounds more or less violent burning ensues, and the wound surfaces are slightly cauterized, and become necrotic superficially. It severely irritates granulating wounds, and slight hemorrhages sometimes occur. Atonic pale granulations are very quickly excited to reparative action by the drug. It acts as an energetic disinfectant on ulcers and gangrenous processes, and is, therefore, recommended for impregnating (2 to 3 per cent.) bandages, for antiseptic salves, preparations of bacilli, etc. It was found that a 1 per cent. ammoniacal solution destroyed the bacteria in putrefying liquids within thirty minutes. Trials of it with gauze saturated with various fermentable substances gave excellent results as showing its value as an antiferment and antiseptic.—*Deutsche Med. Zeitung*.

TEMPERING INSTRUMENTS.—To repoint and temper excavators they should be heated to not more than a "cherry red," and then hammered until about cold; repeating heating and hammering until properly shaped. Then place near the top of a cup a board half the width of the cup and fill with cold water the length of

the hatchet or hoe-blade of the excavator above the board. In tempering, heat only hot enough to give it the right temper without drawing, by allowing the heat of the handle to bring to the shade desired, stick it on the wood and hold until nearly cold, then plunge to the bottom. The shank will be a spring, while the blade will chip untempered steel.

Instruments should never be heated so as to draw down; cherry red is about the color, unless wanted extra hard.

By hammering at a cherry red, the crystal formed by molecules, become elongated and lap past each other, and in proportion to their length does the steel have strength; and as it is heated above a cherry red, the crystals reform and become shorter—consequently, brittler.

Burs should be tempered the same way, only harder. Grind excavators on a fine stone instead of whetting.—SOL. HORNE in *Archives*.

EXOSTOSIS DENTII.—I was called on to perform an operation, for exostosis of human tooth. The patient was a man, thirty-four years of age. Disease continuous fourteen years. Seven fistulous openings had existed in that time, from which purulent pus, blood and spiculæ of bone were constantly oozing. Necrosis of the lower jaw had so far destroyed the bone that it was found necessary to extract two other teeth of ordinary size and shape. The alveoli process being entirely destroyed, so that the gum only held them in position.

I was also compelled to excise one-sixth of the diseased bone of the lower jaw, so that the parts would barely hold together, until, by stimulation, it was reproduced, and inside of sixty days was wholly restored to a healthy condition, without leaving any deformity whatever, nor did it re occur, to my own knowledge, for several years after the operation.

Rationale.—Inflammation, toothache, ulceration, absorption, re-production, re-absorption of the fang to great extent. Time of cure, two months.

Besides the great inconvenience to the gentleman, six of the openings had cost him \$400 for only temporary relief.—EMORY L. WILLARD, M.D., in *Med. Brief*.

COPPER AMALGAN DIE PLATE FOR STAMPING GOLD CROWNS, ETC.
—DR. J. W. WHIPPLE says: It is sometimes difficult to get just

exactly what one wants in the way of a cap for a gold crown. In such cases I make use of copper amalgam in one of two ways: I keep a number of natural teeth which have sound crowns (extracted for one reason or other), and from them select a tooth of the kind and size I want. Cut an opening in a lead block a half an inch or more in diameter and a half inch deep, place the prepared copper amalgam in this opening and press the crown of the natural tooth as deep as you wish the cap to be; let it harden thoroughly, and upon removing the tooth you will find a perfect and sharply cut impression, sufficiently hard to shape a piece of No. 28 pure gold into an absolutely perfect copy of the grinding surface.

The second method is used where no crown can be found which will suit the articulation, owing to twisted and deeply interlocking cusps. Adjust the band to the root just as you want it to be in length and shape, and file flat on top ready for the final adjustment of the cap. Now put a lump of soft plaster or cement on the band and get a bite; remove the band and plaster crown carefully and carve the plaster into a perfect articulating surface. The more artistically this is done, the more perfect the result. Now slip the plaster crown out of the band and imbed in the amalgam to the depth of the projection left by the encircling band. Before the amalgam is hard, trim it with a pen knife, level and smooth with this projection. After the cap is stamped and filled, file it even with the surface of the amalgam die and it will fit the band perfectly. After soldering, if all the work has been carefully done, the crown will go to its place with a perfection of fit and an accuracy of articulation which it is impossible to attain by any other means.

Care must be taken to remove all mercury from the gold during the different stages of the work by pickeling, oiling the impression, and all other means.—*Archives*.

A DISINFECTANT THAT DISINFECTS.—DR. H. B. PLATT says: As it seems to be quite a common thing for medical journals to publish formulæ for preparing disinfectants, many of which are simply ridiculous, and, if followed out, would, by stimulating a false sense of security, do more harm than good, we beg leave to submit the formula of a disinfecting solution that has been tried in many thousands of instances and proven worthy:

| | | | | | |
|-----------------------|---|-----------|---|----|-----------|
| Sol. chloride of zinc | - | - | - | 40 | per cent. |
| " | " | lead | - | - | 20 " |
| " | " | calcium | - | - | 15 " |
| " | " | aluminium | - | - | 15 " |
| " | " | magnesium | - | - | 5 " |
| " | " | potassium | - | - | 5 " |

Here is a combination of the chloride salts which actual test and experiment have repeatedly shown do possess the most radical and potent properties for complete and thorough disinfection, while the solution is without odor or color, leaves no stain or trace, and is at once clean, reliable and safe.

The chloride of zinc has so long stood at the head of all practical chemicals as a real disinfectant that we hardly believe any experienced person will dispute its claim, while the chloride of lead stands equally high as a deodorant. The remarkable absorbing power and affinity for noxious gases is a characteristic of the chloride of calcium, while the cleansing, purifying and preservative properties of the chlorides of aluminium, magnesium and potassium are equally determined.

The above is the formula by which Platt's Chloride is prepared, and we give it thus openly and plainly because we believe in the combination, and have seen its practical working for the past ten years. In its preparation we have steadily kept in view—that it should destroy the vitality of bacteria, or disease-producing germs, while it should not be dangerous or disagreeable, should involve the least possible labor in its use, and be cheap enough for free and universal use. That we have gained this end we leave to the opinions of the thousands of physicians, and the tens-of-thousands of house-holders by whom it is so freely used.—*Med. World.*

A NEW METHOD OF PRODUCING NARCOSIS.—PROFESSOR OBALINSKI proposes the addition of cocaine to chloroform in the production of anæsthesia (*Journal de Médecine de Paris*).

His method is to produce moderate narcosis by the inhalation of a small quantity of chloroform, and then to inject $\frac{1}{2}$ to $\frac{3}{4}$ grain of cocaine under the skin in the locality where it is proposed to operate. No fear, according to the author, need be experienced from a large dose, for he claims that chloroform is an antidote to cocaine, and that during the operation a part of the cocaine is eliminated. After this injection no more chloroform is given,

unless the operation is a prolonged one, when a small quantity may be required at long intervals. The author states that he has employed this procedure in a large number of capital operations, and that it has appeared to him to possess really marked advantages. In a case of amputation of the thigh he employed in the production of anæsthesia only about 2 drachms of chloroform by inhalation and no more than 1 grain of cocaine hypodermically. The operation was completed in 20 minutes, and the anæsthesia was prolonged by the administration of 2 drachms more of chloroform. The pulse, which before the operation was feeble, 120 in a minute, after the injection of cocaine improved in strength, and was reduced to 84 in a minute. The pupils, first moderately dilated, passed into contraction, and so remained up to the end of the operation. The respiratory movements, 30 in a minute, were increased to 48. Anæsthesia was complete, and no vomiting occurred in the recovery of consciousness.

Other cases are reported in which excellent results were likewise obtained by this method, and the author concludes that—

1. This method unites all the advantages of chloroform anæsthesia, combined with the local anæsthesia produced by cocaine.

2. That vomiting is of rare occurrence after the employment of cocaine.

3. Consciousness is regained more easily, and general sickness is much less pronounced. The only disagreeable effect which this method may produce, and which is rare, and only seen in extremely nervous individuals, is a condition of great excitement, manifested by cries and tetanic contraction of the muscles. As, however, this effect is sometimes produced by chloroform alone, he does not think that it can be attributed to the combination of cocaine with chloroform.—*Therap. Gazette.*

METHOD OF SETTING THE LOGAN CROWN.—DR. B. A. R. OTTOL-ENGUI gives his method as follows: Ream the canal so as to exactly fit the pin. But I want to warn you against being in a hurry, for one object I have is to depend not merely on the cement, or whatever material is used for setting the crown, but somewhat on the mechanical arrangement of the pin into the root. A cross section shows that the pin is flattened in the centre, and has a flange on its two edges. If the reamer be allowed to cut down into the canal, and is simply moved back-

ward and forward, it will drill an ellipse, an ellipse that will be perfectly rhomboidal; therefore when the pin is put into the tooth it touches the walls of the canal at four points. There being a square surface and a grooved one, there is a space on both sides for the cement. The depression in the tooth leaves room for the cement, consequently in addition to the holding power of the cement, you have that of the impingement of the pin upon the walls of the canal at four points. In order to get that perfect adaptation you must cut very slowly with the reamer, because while the reamer may be the exact size of the pin, it is only the exact size for a certain length, and not as far as the pin goes. If you send the reamer a little bit further your canal will be too large for the pin. Therefore I say cut a little and try your pin, then a little more and so on until you get it in place. The tooth must not, at first, go quite into place without the aid of the mallet, and must be fitted so tightly that the forceps will be required to remove it.

Be careful too, instead of cutting your tooth square, cut it at a slant, leaving as much of the tooth substance on the lingual or palatal aspect as there is in the mouth. I generally square it off considerably above the gum line, then cut this side off and ream a little down into the cavity. I put in my pin and if it does not touch at this point I ream a little deeper and try again. In nine out of ten cases you will find that you will need to take very little off the palatal side. If you have everything fitted properly, when you tap the tooth into position it will form a good joint. If the edges do not come out as smooth as they should they must be ground off with a smooth stone and disks in a mandrel, used alternately. That edge must be squared up to fit against the square edges of the tooth. Perhaps it will not fit as well as you can get it with platinum burnished over the end of it, but well enough. That I think is the ideal way of fastening a crown in position. I may say here that I have not said much about grinding the crowns. I don't do that. If my tooth is too long for the bite I take it off the root. The pin comes quite near the surface, and whatever you grind away from the bite weakens the tooth very materially. Every bite of material that you take away lessens the value of the crown if you take it away from around the pin.

—*Ind. Practitioner.*

Societies.

"Wherewith one may edify another."

TO THE MEMBERS OF THE DENTAL PROFESSION.

GENTLEMEN :—For the protection of our profession, and at the earnest solicitation of many of its prominent members, the undersigned undertook, after mature deliberation, the formation of "The Dental Protective Association of the United States." Its object, at present, is in a lawful and equitable manner, to unite the strength of our profession to contest the patents of the International Tooth Crown Company, the validity of which has not been established.

Under competent legal advice we deemed it best to become incorporated. This has been accomplished under the name above set forth. The undersigned, having consented to act as the first Board of Directors, By-Laws have been adopted, a copy of which will be sent you. The number of Directors has been fixed at three, as it must be obvious to all that the work of such an organization can only be successfully handled by a small number, not widely separated, so that there can be concerted action without delay.

Please examine some of the considerations which have led to the formation of this organization :

First.—Dentists are writhing throughout the country under having to submit to a grasping monopoly, because, single handed and alone, they cannot afford the expense of contesting its unjust claims. Numbers are being annoyed and prosecuted for the infringement of patents whose validity has never been legally established, and there is every reason to believe never can be established if dentists organize for defense.

Second.—Practitioners have not forgotten the treatment they received at the hands of the Goodyear Dental Vulcanite Company, and from the facts that the International Tooth Crown Company is largely managed by the same individuals they can infer the treatment they may expect if they are unfortunate enough to be left in its power.

Third.—If they do not defend themselves, but allow this company to prosecute its claims, they will have to pay a royalty on all banded or gold crowns they have made or may make in the future.

Don't forget that to yield to the company or to contest its demands alone and unaided, will cost you hundreds of dollars; that to protect yourself by joining the "Dental Protective Association" will probably cost you less than ten dollars.

Don't forget that it will be impossible to reach every practitioner by circular, but notices will be sent to the Dental Journals and such notices are meant for you individually.

Don't forget that we want your name and membership fee of \$10, and your hearty coöperation in securing your neighbors and friends, as members of this organization; that while the benefit of the organization will be shared by the many the work must in the main devolve upon a few. You can greatly aid the directors by responding promptly and by inducing other dentists to join the Association.

We want five thousand names.

Don't forget that name and address, *plainly written*, with membership fee, should be forwarded immediately to J. N. Crouse, Chairman of the Board of Directors of the Dental Protective Association, 2231 Prairie Avenue, Chicago, Ill.

Receipts will be forwarded at once, and a copy of by-laws sent for you to sign, if you have not already done so.

Mr. Lyman J. Gage, Vice-President of First National Bank of Chicago, Ill., has kindly consented to act as Treasurer of the Association.

Board of Directors.—J. N. Crouse, Truman W. Brophy, E. D. Swain.

LYMAN J. GAGE,
Treasurer.

CHICAGO DENTAL SOCIETY.

THE twenty-fifth anniversary of the Chicago Dental Society will be celebrated by a three day's meeting at the Grand Pacific Hotel, Chicago, Ill., February 5, 6 and 7, 1889.

The Grand Pacific Hotel will be the headquarters for guests, and will furnish rooms above the parlor floor, with board, at three dollars per day. All other rooms at fifty cents per day less than usual rates.

The committee expect to secure reduced railroad rates, therefore the usual receipts should be taken when railroad tickets are purchased showing the payment of full fare, and the committee will secure reduced rates returning where it is possible.

An exhibit will be made by manufacturers and dealers of novelties in their various lines.

The meetings will be exclusively devoted to the reading of papers and the discussion of professional subjects and no other business will be transacted.

PROGRAMME.

The meeting will be called to order promptly at 10 o'clock A. M. Discussion follows each paper.

"Gum-colored Porcelain Fillings," by A. H. Thompson, Topeka, Kansas.

"A Study of the Effects of Cocaine upon Man and Some of the Lower Animals," by C. P. Pruyn, Chicago, Ill.

"Obtundents of Sensitive Dentine," by T. E. Weeks, Minneapolis, Minn.

"The Study of Pre-historic Remains in their Relation to Dentistry," by J. J. R. Patrick, Belleville, Ill.

"Caries and Necrosis in their Relation to Practical Dentistry," by J. H. Martindale, Minneapolis, Minn.

"Antiseptics," by G. V. Black, Chicago, Ill.

"The Development of the Teeth, the Formation of Dentine, and its Appearance in Health and Decay," with lantern illustrations, by R. R. Anderson, Cambridge, Mass.

"Artistic Methods in Prosthetic Dentistry," illustrated by large cartoons, by L. W. Comstock, Indianapolis, Ind.

CLINICS.

Clinics will be held on Wednesday and Thursday mornings at the Chicago College of Dental Surgery.

Bridge-work, by J. B. Vernon, St. Louis, Mo.

Porcelain fillings, by C. Thomas, Des Moines, Iowa.

Filling root canals with lead points, by Francis Peabody, Louisville, Ky.

C. S. Case, Jackson, Mich., will demonstrate his method of making artificial vela and obturators for cleft palate, provided a subject can be secured.

Gum-colored porcelain fillings, by A. H. Thompson, Topeka, Kansas.

Filling with crystal gold; and the use of matrices, by E. T. Darby, Philadelphia, Pa.

Porcelain fillings secured by gold filling, by A. W. Hoyt, Chicago, Ill.

S. G. Perry, New York City, will demonstrate the application of Perry's separators, and the Weber-Perry engine and mallet.

Setting of Logan crown with gold attachment, showing original method of investment for soldering, by T. E. Weeks, Minneapolis, Minn.

Obtunding of sensitive dentine, and controlling of periodontal inflammation by electrolysis, by D. F. McGraw, Mankato, Minn.

J. W. Wick, St. Louis, Mo., his method of gold filling.

Implantation, by Louis Ottofy, Chicago, Ill.

Gold crown telescoped over a platinum band; also a combination crown

of platinum and Weston's metal, or of gold, porcelain and Weston's metal, by T. D. Gilmer, Quincy, Ill.

Gold filling, using electric mallet, by E. H. Allen, Freeport, Ill.

Gold filling, by C. N. Johnson, Chicago, Ill.

Herbst method, by C. W. Lewis, Chicago, Ill.

Copper amalgam, by J. G. Reid, Chicago, Ill.

Gold filling, using Snow & Lewis plugger, by M. E. Smith, Chicago, Ill.

W. H. Taggart, Freeport, Ill., will show a new root trimmer, and a new suspension engine.

J. W. Wassall, Chicago, Ill., will demonstrate root filling with chloro-percha and gold points; also, the use of McKellop's platinum gold broaches.

Gold filling, using Abbey's non-cohesive gold in cylinders, by E. A. Royce, Chicago, Ill.

Movable bridge, by T. S. Waters, Baltimore, Md.

Movable bridge; also a new rubber dam clamp, combined with a cheek holder; also a separator, by R. B. Winder, Baltimore, Md.

Movable bridge, by Henry A. Parr, New York City.

Reflector for lighting the mouth, by J. A. Woodward, Philadelphia, Pa.

J. N. Farrar, New York City, is expected to be here and will exhibit his regulating appliances.

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| J. N. CROUSE, GEO. H. CUSHING, E. NOYES, | } | Ex. Com. |
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Books and Pamphlets.

A COMPENDIUM OF DENTISTRY FOR THE USE OF STUDENTS AND PRACTITIONERS. By JUL. PARREIDT, Dental Surgeon to the Surgical Polyclinic at the Institute of the University of Leipzig, etc. Authorized translation by Louis Ottofy, D.D.S., Lecturer on Physiology, Chicago College of Dental Surgery, with Notes and Additions by G. V. Black, M.D., D.D.S., Professor of Pathology, Chicago College of Dental Surgery. pp. 217. Illustrated. Chicago: W. T. Keener, 96 Washington St., Publisher. 1889. Cloth, price \$2.50.

In many ways this work differs from any heretofore issued. It is designed not only for the dentist but physicians as well. In the translation from the German, careful revision has been made bringing the work into conformity with the latest and best methods of American practice. The translator, Dr. Ottofy, is well known, and Dr. G. V. Black needs no introduction. As a dental pathologist and original investigator Dr. Black ranks among the very first in this country and in fact, the world; and what he has added to the work (in all making over 30 pages) greatly enhances its worth.

In substance the book is practical, concise and thorough. No words have been wasted; a feature that alone recommends it.

That the reader may gain a better idea of the contents we give it in part as follows: ANATOMICAL AND PHYSIOLOGICAL INTRODUCTION, consisting of the

anatomy of permanent and temporary dentures, structure, development and physiology of the teeth, and dentition.

ANOMALIES OF TOOTH FORMATION.—Anomalies of size, number, position and structure, and disturbances of dentition.

DISEASES OF THE HARD DENTAL STRUCTURES.—Fracture of the teeth, exfoliation and abrasion, and the pathology, etiology, and therapeutics of caries.

DISEASES OF THE DENTAL PULP.—Hyperæmia, inflammation and atrophy.

DISEASES OF THE PERIOSTEUM.—Acute inflammation, apical and chronic apical pericementitis, tumors of the periosteum, and luxation of the teeth—replantation.

DISEASES OF THE ALVEOLAR PROCESS.—Fracture, alveolar periostitis and treatment, idiopathic periostitis, abscess, gingival fistula, otitis and partial necrosis of the alveolar process, pyorrhœa alveolaris, alveolar atrophy, epulis, and carcinoma.

DISEASES OF THE MAXILLARY BONES.—Osteo-periostitis, abscess and buccal fistula, empyema of the antrum, phosphorus necrosis, rachitis, chronic abscess, maxillary cysts, fractures, dislocation of the inferior maxilla and serous inflammation of the temporo-maxillary articulation.

DISEASES OF THE MUCOUS MEMBRANE OF THE MOUTH.—Hyperæmia of gums, gingivitis, stomatitis, cellulitis of the floor of the mouth, and hypertrophy of the gums.

NEUROSES FROM DENTAL LESIONS.

THE FILLING OF CAVITIES IN THE TEETH.—Preparation of cavities, materials for and introduction of fillings.

EXTRACTION.—Indications justifying the operation, instruments, operation, disinfection of instruments, general and local anæsthetics, and accidents and unfavorable consequences of extraction.

PROSTHESIS.—Preparation of the mouth, impressions, model and cast, artificial teeth, dentures on rubber and metal bases, retention in the mouth, and obturators and artificial palates.

As will be observed the book covers a large field, and although containing but little that is expressly new, the condensation and arrangement are so good that it recommends itself as a book of ready reference, and should be in the library of every dentist and physician. The book is printed on extra heavy paper, neatly bound and the typographical appearance is excellent.

THE POPULAR CYCLOPEDIA. The Sixth volume of Alden's *Manifold Cyclopædia* extends from Bravo to Calville, its 635 nicely printed pages including 120 illustrations. Along with its manifold number of words and topics treated briefly, there are many extended articles, as for instance, Brazil, seven pages; Breech loading Guns, eleven pages; Bridge, eleven pages; British Museum, ten pages; Brooklyn, five pages; Buddhism, fifteen pages; and California, sixteen pages. The *Cyclopædia* well deserves the enthusiastic commendation it is receiving from all sides; it is certainly *THE Cyclopædia* for popular use. Its small handy volume, contrasting so greatly with the usual bulky, unwieldy volumes adopted by publishers of *Cyclopædias*, is a very pleasant characteristic, and undoubtedly adds greatly to the usefulness of the work. Dr. Hasty of Indianapolis, says: "I have the

American Cyclopaedia, but reference is made to the *Manifold* so far as I have it, ten times to once to the former. It is a marvel of compactness and completeness" The publisher sends specimen pages free to any applicant, or specimen volumes, which may be returned if not wanted, for 60 cents for cloth binding, 75 cents for half Morocco, post-paid. JOHN B. ALDEN, Publisher, 393 Pearl Street, New York, 218 Clark Street, Chicago.

LITERATURE.—A handsome, interesting and instructive Weekly Magazine. In its plan of giving illustrated biographical and critical studies of popular authors, recent issues have been devoted to Guizot, the historian and statesman; Paul Hamilton Hayne, the brilliant southern poet; Ralph Waldo Emerson, philosopher and transcendentalist; and Wm. M. Thackeray, novelist and humorist. Each subject is well presented in a biographical and critical sketch followed by copious characteristic selections from his work. \$1.00 a year; specimen free. Published by J. B. Alden, 393 Pearl St., New York.

DIET TABLES. Containing lists of what the patient may eat and what to avoid during sickness from a large range of diseases. Published by Reed & Carnrick, 447 Greenwich St., New York. Copies of this book will be mailed free to any physician in the United States upon application to the publishers.

This work is put in a pocket size, flexible covers, and comes in so handy when you are asked the question: "Doctor, what can I eat?" You take out your book, refer to the disease, mark the food you wish your patients to take, tear off the tab, and hand it to them. When you have exhausted your supply send for more tabs as they are self-binders. Send for one and you will be pleased.

"THE RECORD."—A monthly journal published by the Students' Society of the New York Dental College. This is a very creditable journal both in substance and appearance and we wish it success.

CALENDAR.—We acknowledge the receipt of a handsome calendar, for 1889, from Gideon Sibley, Philadelphia, Pa.

BOOKS RECEIVED.

DISINFECTION AND DISINFECTANTS. Published by the American Board of Health Association, Concord, N. H. Irving A. Watson, M.D., Secretary.

THERAPEUTICS—ITS PRINCIPLES AND PRACTICE, by H. C. Wood, M.D., LL.D. Philadelphia: J. B. Lippincott Co.

Transactions of the Illinois State Dental Society. 1888. Dr. Garrett Newkirk, Secretary.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Our Aftermath.

A YOUNG girl paralyzed the muscles of mastication by engaging in a chewing-gum contest in Minneapolis last week.

DR. JOHN B. HAMILTON, of Washington, D. C., has assumed editorial charge of the *Journal of the American Medical Association*.

CHANGE OF PUBLISHERS.—Beginning with January, 1889, *The Dental Review* will be published by the well known dental dealer, H. D. Justi, Chicago. No change in the editorial staff.

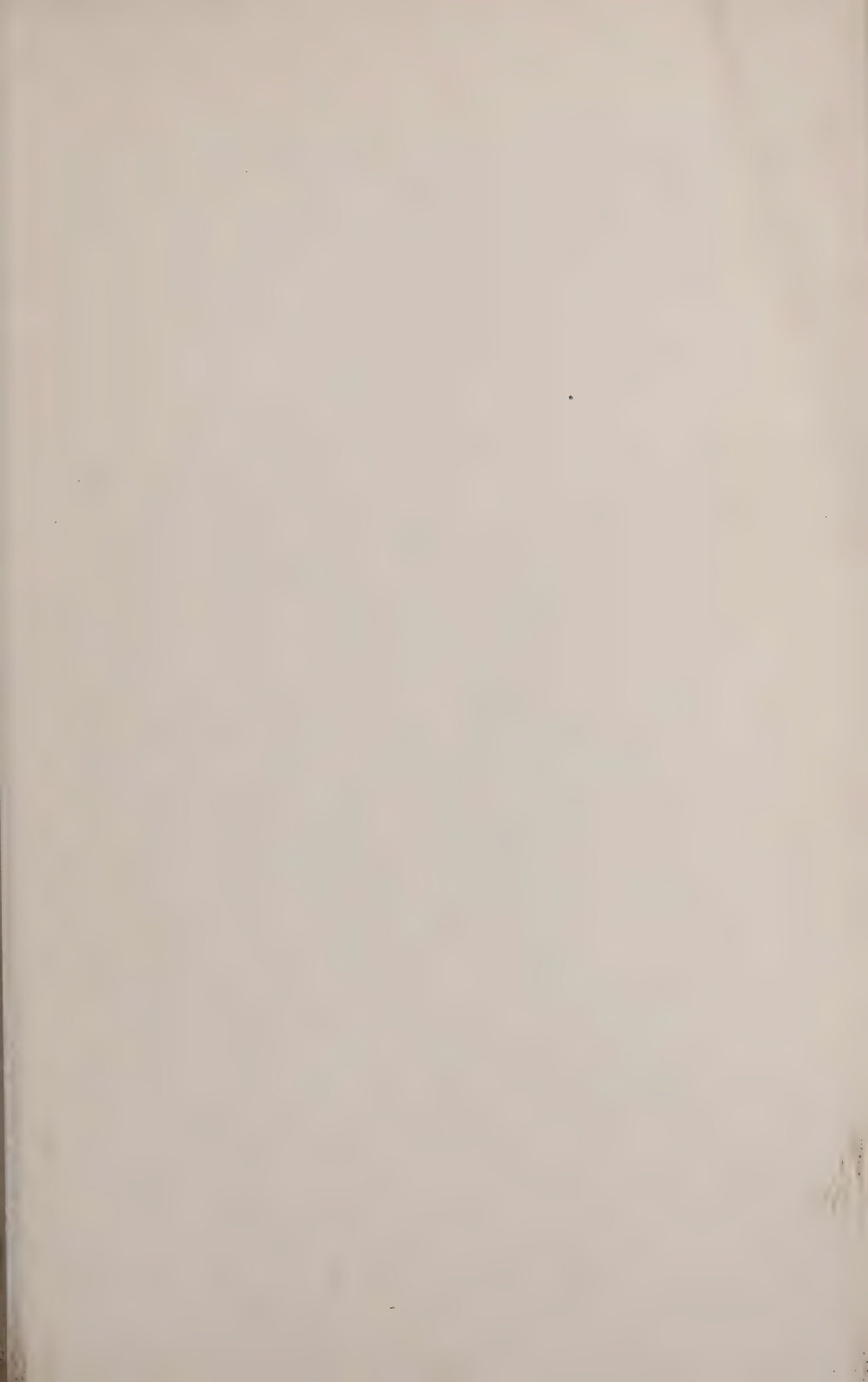
"What's the matter with you, Jimmy?" asked one small boy of another whose face was bandaged up. "Had a tooth pulled." "Had a tooth pulled! Whee! ain't I glad I ain't you. Does it hurt much?" "Yes, it hurts some; but I bet I kin spit furdern you when it gets well."—*Merchant Traveler*.

The doctor for his care
Our thanks obtains;
But not the dentist though,
Who "spares no pains."

—*Puck*.

IN America "Doctor" is a promiscuous title. The preacher is a doctor. The school principal is a doctor. The family physician is a doctor. The patent medicine man is a doctor. The dentist is a doctor. The veterinary surgeon is a doctor. The extractor of corns, bunions, and ingrowing toe nails, without pain or loss of blood, is a doctor, and so on. This is a free country. In foreign countries this freedom is not allowed. In Germany an American dentist has just been fined for placing doctor on his cards. May the good work begun there cross the ocean and invade this country.—*Ec*.

A DIFFICULTY experienced by most of us, even if we be unconscious of the defect, is the power of expression in language at once clear, brief, and comprehensive. Sailors, as a class, are peculiarly gifted in making themselves easily understood; and Admiral Hall, in his excellent book bearing on this subject, gives a characteristic instance of "Jack's" accomplishment in connection with dental matters. A sailor, wishing to have an aching tooth extracted, was asked by the operator as to the locality of the offender: "Oh," replied the patient, "it's the hindermost grinder aloft, on the star-board quarter."—*Dental Record*.





L. W. Keely

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"A word fitly spoken is like apples of gold."—SOLOMON.

BIOGRAPHICAL NOTICE.

PROF. GEO. W. KEELY, D. D. S.

BY GEO. WATT, M.D., D.D.S.

MANY readers of the JOURNAL will notice that our frontispiece has a familiar look. As with ourselves they will feel like speaking to it, expecting a cordial answer. Though not disputing the fact, we have not learned to *feel* that he has forever gone hence, that he no longer sojourns in the land of the dying, but dwells in the land of life. We are with the poet who says of a departed friend,

"I cannot make him dead."

While mourning with the widowed and fatherless, and bewailing our own bereavement, it affords us extreme pleasure to be able to call the attention of his friends to a likeness of our departed brother so accurate and expressive in all its details. For it will enable us all to more vividly call to mind his personality, his professional standing, and his traits of character, and with these in mind, we cannot well regard ourselves as members

of the same profession, without resolving to try to imitate his manliness of character and disposition. To look at the portrait, especially by an acquaintance, will tend more to professional elevation, than to listen to an eloquent lecture on professional etiquette. It was hard to do anything low, or unprofessional in the presence of Doctor Keely.

DR. GEORGE W. KEELY lived and died at Oxford, Butler County, Ohio. He was born October 22nd, 1822. The place of his birth had, doubtless, much to do with his mental and social development. Miami University is located in Oxford, and so are and have been various other institutions of learning. From the first, and through his entire life, he had well educated and intelligent associates. If a man is to be known by the company he keeps, he is fortunate to have good company to keep. If his comrades aided in molding his character, he in turn, did much to mold theirs, for he was so evenly and well balanced that they would naturally regard him as a proper model. Those who knew him cannot imagine Dr. Keely doing or saying anything ridiculous. Being unselfish and self-possessed, he was a most efficient peacemaker.

Dr. Keely was for sometime a student in the University, but, for a much longer period, a member of its Board of Trustees. Being one of its resident members, he had more care and responsibility than would have devolved on him at a distance. His experience here, no doubt, made him a more useful and able counsellor when a member of the Ohio College of Dental Surgery, yet he never presumed on this, nor showed any sign of desiring superiority of influence. With all his self-possession, he was as modest as a maid.

In 1839, an intelligent youth of seventeen, we find him entering the office of Dr. John Allen, of Cincinnati, where he spent two years, having there opportunities in the details of practical dentistry fully up with, if not in advance of the times.

In 1841 he returned to Oxford, and there established an office of his own. After twelve years of experience in the practice of dentistry, in 1853, he graduated from the Ohio College of Dental Surgery, and he sent to this college a remarkable number of his private students, who succeeded well in their classes, and afterward in practice. Drs. C. M. Wright and H. A. Smith, now professors in that college, were once his students.

Dr. Keely was present and active at the meeting at Niagara Falls, in 1859, which resulted in the formation of the American Dental Association, of which he became an active and diligent member, and of which he was chosen President in 1876, at a meeting in Philadelphia. Afterward, at a meeting at the Highland House, Cincinnati, he was elected Treasurer of this Association, and was reelected from year to year while he lived. He was active in the formation of the Ohio State Dental Society, was its first Vice-President, its second President, and for many years its Treasurer. He was an active member of the Mississippi Valley, and Mad River Valley Societies, and an active or honorary member of the Kentucky, Indiana, Missouri, Illinois, Wisconsin, and other State societies. He was long a trustee of the Ohio College, and was its lecturer on Irregularities of the Teeth. In this specialty he was a master, and in his later years gave his whole time to its consideration and treatment. In this field he was, perhaps, the best interpreter of Nature to be found in our profession.

Dr. Keely was twice married, and became the father of eleven children. In 1851 he was married to Miss Susanna Wells, of Cincinnati, who died in 1856. Of her three children but one survives, Dr. Charles I. Keely, of Hamilton, Ohio. In 1861 he was married to Miss Cornelia Cone, of Oxford, three of whose children remain to mourn with her their joint bereavement.

As to Dr. Keely's ability as a writer, the readers of the JOURNAL need no information. They know the clearness of his thoughts, and know, too, that his pen was able to clearly express his clear thoughts.

Life is a wonderful reality, and hence death is a solemn event. Yet when through weight of years the strong man is bowed, and desire has failed, there is a seeming appropriateness in man going to his long home, even though the result may be that "mourners go about the streets." But our friend was suddenly stricken down while still active in caring for those dear to him, and while so busy with professional and social cares and responsibilities, that, as we view matters, he could not be spared. As humanly expressed, he died by a terrible accident, but there are no accidents in the hands of Him who is over all.

In our October number of vol. 8, p. 477, we gave a brief statement as to the manner of his death. In brief, he went to

his office in the evening to attend to some correspondence, but before beginning this work, he went up to a third story rear window to adjust a telephone wire, and he fell to a pavement some thirty feet below. This was probably about 8 o'clock, and not till 11 was he found by the night watchman, he having crawled to the front of the building, after regaining consciousness. Though severely injured in several ways, he suffered but little if any pain. He lingered till the afternoon of the second day after the fatal fall, when he passed quietly away. And thus died a great good man.

The various associations in which he had held membership, passed appropriate resolutions expressive of respect and sympathy. As we published specimens of these in our obituary notices, they will not be repeated here.

Biographical writing is apt to be eulogistic. To be truthful in this case it has to be.

"Green be the turf above thee,
Friend of my better days;
None knew thee but to love thee,
None named thee but to praise."

WHAT WILL '89 BRING US?

BY W. H. WHITSLAR, D.D.S., M.D., YOUNGSTOWN, O.

THE past year has been an eventful one to the dental profession. New inventions have been made and many devices assist in labor-saving, besides the benefits that our patients derive from them. It is not necessary to make any enumeration of all of these, or any of them for that matter, for the reading and thinking dentist knows what they are.

Now to our subject proper, for whilst it has already been said that new inventions have been made, yet contentment is oft-times given by the reiteration of that trite saying, "There's nothing new under the sun," and it is but a repetition of the same old stubborn facts, rough shod as they may be, that are now to be offered at the beginning of this new year.

We read in our journals advice given by some gray-haired veteran in our ranks, to us younger men, how to increase our

practice, but let me tell you what has been my experience, and I am sure (though this is written for my younger friends) that many older ones might retain a percentage of practice that is slipping away as age increases.

The first and often most important duty we have to perform in operating upon teeth is to *clean* them.

I know this is a time-worn subject, and it is sometimes as disagreeable to read so much about it as it is to do the work, but yet, a little "punching up" occasionally will not hurt any of us.

Why do we clean teeth?

First, simply to make them clean, and hence because they are clean it is evident *a priori* that decay will not take place so readily.

Second, from a business point of view, to increase our practice in quantity and quality.

I have seen beautiful fillings inserted into dirty teeth, and the person, or persons, allowed to depart with them in that condition. It was astounding! And not only because of the looks, but the safety of the teeth are endangered even though the fillings were just completed.

Pride alone should spur every one to be artistic and have his operations completed so that they will do well and look well. A handsome, well made filling looks better in a clean tooth and is worth in money far more than one in a dirty tooth. Take a good amount of pride in cleaning teeth and the patients will exercise more care when they do it for themselves. You say, "Oh, I haven't time to clean teeth," clean the ones you fill, if no others, but do all you can before the patient gets out of your chair, and it is certain that your work will be better appreciated and better paid for. It is not my purpose to tell how to clean teeth when such admirable articles on that topic can be read in the *American System of Dentistry*, under the heads, "Calcareous Deposits on the Teeth," by Prof. A. W. Harlan, and, "Hygienic Care of the Teeth," by Dr. Louis Jack.

Read them, do as instructed, increase your practice thereby, make more money, which every young man wants and needs, and '89 will make you a better dentist.

COMBINATION OF PLASTER-OF-PARIS AND MODELLING COMPOUND FOR TAKING IMPRESSIONS.

BY LEVITT E. CUSTER, D.D.S., DAYTON, O.

PLASTER-OF-PARIS has long been regarded the best material for taking impressions. By its perfect plasticity the soft tissues may be taken in their normal position, as also may be obtained the sharpest outlines. After crystallization, if it cannot be removed as a whole, by its definite fracture the broken parts may be properly readjusted. Where a perfect reproduction and especially of the soft tissues is desired, plaster-of-Paris is preëminently the best material at our command. But even this is not without objections. In cases where there are teeth remaining which stand at different angles or which have large crowns and small necks which are often exposed by recession of the gums, plaster-of-Paris does not answer as well as some other materials used for that purpose.

Modelling composition may be classed next to plaster-of-Paris as an impression material. Fortunately it has qualities which indicate its use where plaster-of-Paris is wanting. Teeth standing at different angles or with large crowns and small necks are taken best with modelling composition.

Now if we could make a combination of these two materials in obtaining an impression in such a manner that only the best qualities of each would be used we would obtain much better results than by the universal use of any one material; therefore I have a method to present which I have been using for some time with the most satisfactory results. It is especially applicable in partial upper cases.

With a spatula made of a material which can easily be bent in any shape, as of block tin or impression tray material, plaster-of-Paris of the usual consistence for impressions is carried to the roof of the mouth and there spread upon the mucous membrane as far back as its desired to make the plate; more plaster is added to this until it is even full down to the necks of the teeth. The lower surface is to be roughened for a purpose which will appear further on. Water for modelling compound being heated, in the

meantime the impression tray is filled with one-half the usual amount of the composition and placed in position against the teeth and plaster core which by this time has become hard. When cooled remove and varnish both parts. When the varnish is dry, oil the plaster core only, as modelling composition separates more nicely when varnished than when oiled. From this procure the cast in the usual way.

The advantages of such a procedure are, first, the plaster and modelling composition are each manipulated in such a manner that the best qualities only are used; second, the plaster being placed in position against the mucous membrane in its softest state is allowed to harden without any pressure as is required when using a tray; and third, the plaster is completely under control, and is allowed to extend no farther back than is necessary, so that gagging is largely prevented.

MEDICAL EDUCATION FOR DENTISTS.*

BY C. M. WRIGHT, D.D.S., M.D., CINCINNATI, O.

I SHOULD be sorry to have this subject of the education of the dentist, or rather education for dentistry, become settled without having put my finger into the pie, metaphorically speaking. I have felt all along that there was no hurry about the matter. It will not be fixed until the "cohesive or non-cohesive gold" question, the "amalgam" question are fixed, and these of course we shall always have with us. But the education question like these others, might become quiescent for a while and I might not be here or not in condition to take an interest in it when it shall again appear on the tapis, so I seize this opportunity and plunge into the subject now.

The fact that busy and prominent practitioners of medicine and dentistry, who are not often professors in medical or dental colleges, or editors of medical or dental periodicals, are so much interested in the education, or proper preparation of those who are destined to occupy the shoes of the present race of practitioners, must have some reason. There must be some grounds for the discontent with past and present methods of education.

* Read before the Ohio State Dental Society, Cincinnati, October 18, 1888.

What are these grounds? Why are not Drs. A., B. and C., who have been successful in gaining professional favor, professional honors, and large practices, where one would suppose all their energies could be profitably engaged, not contented to let the coming doctor and dentist work out his own salvation in the same way that they themselves have? It cannot be that Drs. A., B. and C., are possessed by the foolish idea, that "now that we are in, we must make it as difficult as possible for others to get in." It cannot be that Drs. A., B. and C., who have done so nobly in all other respects, can have any but the purest motives in this direction. They are doing what they consider a duty, and this duty lies at present in trying to make the fence about the dental field higher and higher, and in some cases adding a barbed wire at the top of the fence. Why this should have become a duty, I cannot answer. I must acknowledge that I do not know; nor can I see any reason or sense in it. This may be my fault, but I am open to conviction. Fences are good in their way for keeping out intruders and for defining boundaries. When the distinguished Drs. A., B. and C., entered the profession, the fences were so low and so badly built that they could be stepped over with the greatest of ease, and no thoughts of the danger of rents and tears from the abominable barbed wire ever entered the intruder's mind.

Gentlemen, to be sincere, the fence was a very low one when I entered the profession. The requirements were a two years apprenticeship or studentship, and a course in a dental college. The labor, the anxiety, the sleepless nights and worried days, the study of medical science, all came afterwards when securely within the field. For several years the mechanics of our practice occupied my best thoughts. I don't think I looked or thought of anything beyond the *how* to do it, in daily practice. The *how* is just as important to-day as it was a quarter of a century ago. Clinical experience seemed to me the very first thing of value, and to acquire that required all the energy and devotion possible. It is to-day as valuable and as difficult to acquire as at any past time in our history. Cultivation of the muscles so that they shall respond delicately and skillfully, and accurately, to efferent impulses from a trained mind, is of the first importance in our specialty. Will a medical education train the mind for this sort of work? If I should answer the question in my own way, I should say,

“not particularly.” Latin, Greek, the higher mathematics, the natural sciences, all furnish gymnastic exercises for general mental development. So does the study of the science of medicine. The particular study which the dental student needs is exactly that which the best class of dental colleges of to-day offer with their two courses of lectures on anatomy, chemistry, materia medica, physiology, pathology, general and special, and therapeutics, and their present facilities for, and encouragement of diligent laboratory and infirmary practice. This is all that the beginner needs. Nothing more, nothing less. It is the education *par excellence* for the preparation of young men who propose to enter the field of dental practice. It is practical. It is the outgrowth of independent American directness of purpose, untrammelled by ancient precedents. It has been evolved from American necessity, and has been admired and applauded and copied (as near as possible) by special educators in other countries. We hug ourselves on account of the reputation our *young* specialty has gained in the world. The dental college is the prime factor in the good reputation—the dental college standing alone and independent of any medical faculty—the American Dental College, which has become an institution, in the broader meaning of that term, in our country and only in our country—this is the school for the dental student. It isn't the school for medical, or law, or theological students. Neither are medical, or law, or theological schools the place for dental students.

But the science of dentistry we say, is a branch of the science of medicine. Medicine is the *alma mater* of dentistry as well as of ophthalmology, gynecology, etc., etc. This is all true, and I for one have no disposition to dispute the proposition in any of its points, but when you go on to say after stating the above proposition, “therefore, the dentist like the oculist should study medicine first and dentistry afterwards,” I object positively, and insist that the conclusion has no logical connection with the accepted proposition. Anatomy is a branch of the science of biology. Would it not be better for a young man who expects to become a practical anatomist to begin with dissections and the study of anatomy proper, than for him to spend a year or two in the study of biology? After the technique has been acquired and skill with the scalpel, how natural it is for the student of anatomy to extend his studies and reach back into the interesting

science of biology. I don't want to multiply examples, but to insist that the study of medicine becomes a desire, a pleasure, a necessity to the dentist *after* the course in the dental college, and after manual skill has been attained in the infirmary and in practice. Drs. A., B. and C., have pursued this course. Dental graduates are continually supplementing their dental studies by later medical studies. A dozen dental graduates in the immediate vicinity of this house have within a few years graduated at one or another of the medical colleges of this city. It is not at all an uncommon occurrence, and what fine medical students the dental graduates make! Medical education for *dentists* is of the greatest advantage. Medical education for dentists is becoming every day a greater necessity. We must all approve of it. But I want to make the distinction as clear as the line between black and white, that medical education for *dental students* is as unnecessary and as unprofitable, as the study of theology would be to a law student. It would be a waste of physiological energy at the wrong time. It is not a direct route. It is dilettanteism and harmful, instead of useful to practical students. A knowledge of the use and skill in the use of the forceps, or laryngoscope, or of any of the special instruments of specialists in surgical practice, can only be acquired by a special training, whether after a medical course or before a medical course.

The dentist, among all specialists, is the only one who has a special school devoted to this necessary training. The school has proved a success. Why then should we want to change its character and go back to older and inferior methods? Ophthalmology and laryngology might be very much benefitted if these specialties had their schools arranged exactly after the pattern of the dental colleges, and entirely independent of medical colleges. This may be but a matter of opinion. Many things are but matters of opinion.

"By their fruits ye shall know them." The fruit of the American Dental College has made American dentistry preëminent in the world. The medical colleges have ripened but very little fruit in the dental orchard. If you will show me one very prominent and distinguished practitioner of dentistry who has come to us from the medical schools, I will show you ten equally as prominent and distinguished practitioners who have come from the dental schools. Dr. Norman Kingsley looked into this subject some years ago, and stated some significant facts in regard to it. We

might adopt his plan and analyze this assembly as a representative society of the State of Ohio. How many of us members of this society have received a medical college education first and our dental education afterwards? I suspect a straw vote would show a very insignificant minority of the former. Why then, gentlemen, do Drs. A., B. and C., want to change the methods of the dental college, or attach dental *chairs* to medical college faculties. These dental *chairs*, so-called, have always seemed to me to bear about the same relation to a chair in an independent dental school, that a little wicker work child's chair, with a hole in the bottom, does to a comfortable adult arm chair. Our profession is too old for the little chair now. Let's put it away in the garret with the tin soldiers, rag-babies, and rocking-horses of our babyhood, and stick manfully to our dental schools and the chairs filled by professors of the science and art of dentistry.

DISCUSSION.

DR. BERRY: Dental colleges were commenced when our country was new. The Baltimore College was founded about half a century ago. Not long since, at a State dental society, a dentist, who did not know what he was talking about, said that the four professors of this college spent the entire time of the first session in teaching mechanical dentistry only; while, in fact, eminent in their professions for their talent and learning, these professors gave probably as thorough and able a course of lectures on the subjects of their chairs as has ever been given at any college since.

Five years after the founding of the Baltimore College, and only about fifty years after the Indian was driven out of this valley, the Ohio College of Dental Surgery was established. The teaching of the first term was very good; and, although there was no professorship of chemistry, Dr. Slack, one of the charter members of the Medical College of Ohio, gave on this subject, an able course of lectures.

As time passed, improvements were made in the course of instruction in the dental college, and they are doing good work for the profession. But too short time of study and attendance at college is required. There is too much for the average student to learn, for him to master it, in two of the present college terms. Of course, as this need of more thorough acquirement is felt by

our profession generally, the standard of attainment for graduation will be raised.

How many chemists are there in the dental and medical professions in Ohio? Are there twenty? I do not mean those who can tell the number of the elements, or describe oxygen, but who are well posted in chemical science. The dentist or physician who is not proficient in chemistry is very lame.

DR. BUTLER: I am not at all surprised that the gentleman connected with dental schools directly, should be a little concerned in talking up this subject; and we would all be glad to hear from them.

The paper of Dr. Wright reminds me of one presented by Dr. Tomes, at the International Medical Congress, held in London in 1881; he placed himself in the same position that Professor Tomes did, in regard to medical dentistry; he spoke for the students and I agree with him. There are those here, too, who know that I have been in favor of a dentist being also a graduate in medicine, and I hold that that position is perfectly right as stated; it is a valuable acquirement. Prof. Tomes said that education for dentistry was similar to the training of the young man that wanted to acquire facility as a musician in the handling or the manipulating of a musical instrument. If he ever becomes an expert on the piano, organ, violin, or on any of these instruments, he must do it in his younger days while he has full agility of his digital powers. Now in order to become a skillful dentist a young man must educate his hands and fingers. I once read a paper before this society on the education of the head and hands in order to become a dentist. Now why has dentistry advanced so rapidly in its short life as a profession?

In all medical schools where they have the highest status they provide for that. They have the greatest of clinical facilities in the hospital, in the amphitheater, where the student can have his didactics brought down in the practice, and here is where the dental schools are preëminent in their mode of teaching, those that have the best hospital or infirmary department, or clinical department, where all these different manipulations may be gone through under the directions of an able teacher in that department. These are the best preparations for those who intend to practice dentistry, and the school that fails to provide for that thing in the very best possible manner, is not doing what it

ought to do, and the medical school that is turning out graduates year after year with very poor facilities in that direction fail to give us the best recruits for the profession.

You take any of these specialists and if they become expert manipulators you will find that they commenced their study in that particular direction in their younger days. You may look the world over in any department, and you will find that these men are those that commenced the study of that particular field in their younger days. As Dr. Wright has said, after they have acquired a dental education they have to study medicine in the different departments. This is all valuable, very valuable, they are indispensable in fact, and whether his Drs. A., B. and C., acquired their knowledge easily or through a hard field makes no difference. If you want to become a practitioner for your own honor and the honor of the profession, and to obtain a prominent place among them you must expect that you have hard work before you, and you will not succeed unless you are energetic and set yourself to work with a determination that no man shall exceed you in your calling.

DR. FLETCHER: I was thinking of defending this chair spoken of in Dr. Wright's paper. I think he has put that chair in a very bad light. You probably have all had occasion to observe that dentistry has attained that position in which we might very easily give instructions on diseases of the teeth and mouth to many a professor in medicine. Those of you who have had any experience in that line know how many times patients having a diseased tooth may be prostrated for days, being attended by physicians who have little knowledge of how to relieve them from such pain. And for that reason if no other, I would hold that a dental chair in a medical college would be a great benefit to both physician and patient, at least the physician should know when to send a patient to the dentist, when proper occasion requires.

I look upon the profession of dentistry as requiring some medical knowledge, and I think that students ought to have a broader education than they simply receive in any one college. In order to be successful in any line it is necessary at least to have some knowledge in many other branches, and the more knowledge you have on any branch which bears directly or indirectly on the line of investigation which you are following, the

better you are fitted for the work. By a surplus of knowledge we certainly do our work more easily with greater benefit to our patients than by working up to our full capacity in ever ordinary operations. I for one should be glad to see,—if it could be arranged in a practical way,—the standard of education elevated in the dental profession. I have no complaints to make of the dental colleges and their standing, but I do hold that a man can simply graduate at a dental college and not be fully competent to attend intelligently to every case which comes into his office. I look upon a dentist who has some knowledge of medicine as more competent to practice than without such knowledge, but I would not reverse the order of things. My idea of the education for the dentist would be that you should start out with the practice of dentistry, and not that you should start out to practice medicine, and then if you make a failure of that to try dentistry afterward. I would like to see the standard of our profession so elevated, not that we should keep out those who would like to come in, but they should fully realize what it requires to be a successful practitioner. What I mean by a successful practitioner, is not in a financial point of view, but that we be so educated that when a case is brought before us we may fully comprehend what the case requires, and I should say that in order to do this it is necessary that we should have some outside knowledge besides that we have received at any one college or from any one line of study.

DR. TAFT: In reference to the paper, the author seems to take it for granted that there is a general or at least a commonly entertained opinion, that it is important that a man seeking to enter the practice of dentistry should first graduate from a college of medicine. I do not think that such an opinion is general. I know that a few persons have entertained that opinion, but I know also that others have indicated some modifications within a reasonable period, therefore, it seems to me that it was hardly necessary that the paper should present that point so prominently, that there were people or members of the profession, and others perhaps entertaining the idea that every man who seeks to enter the dental profession ought first to be a graduate of medicine.

Now in regard to the amount of knowledge that ought to be possessed by one practicing dentistry there perhaps would not be a great difference of opinion. Among intelligent men in a pro-

fession I think there would be a much nearer agreement of opinion than many suppose. How they should get that knowledge perhaps is a question of considerable importance, but this may be borne in mind that the capabilities of different individuals are not alike, but of course in a matter of this kind the proper course to pursue is that which best serves the largest number. Now I do not believe that one starting into preparation for the practice of dentistry, a young man of 18 or 20 years of age, ought to take up a regular course of medical instruction as fully as one who intends to make the practice of medicine his life-work. It seems to me that the better method is to train the manipulative faculties and that these should first have attention. During the period of life from 18 to 24, or perhaps earlier, the manipulative faculty will be more easily cultivated than at a later period of life. I am very fully impressed that this training should begin early and should be taken up at the beginning of the work. The teaching of principles should in one sense follow the technical training. Some students are able to carry forward a number of branches with profit, while others will struggle and labor hard with two or three and some with one. The proper course is for such a person to be guided according to that which he is able to do, and let him accomplish that thoroughly as he proceeds. The graded system of study and work should be adopted by all colleges.

As to graduating first in medicine I do not believe it the better course. Whether a man graduates in medicine after he has pursued a dental course rests with himself, and if he possess the knowledge it is not a matter of very great importance whether he has received the degree or not. A degree is simply a certificate of those who have been the teachers, and it only means that the person receiving the certificate has pursued a certain course of study up to a certain point.

Now, as to teaching dentistry in medical colleges—this was referred to—I do not understand that this is advocated by anybody. I do not know of any medical colleges that have dental chairs with a view of preparing a man to practice dentistry; it is possible that there may be some but I do not know of any. The foundation branches of medicine should be studied by every dentist, but as to the best methods of doing this there may be differences of opinion. Of course every dental college should be organized so as to embrace all of these branches.

DR. SMITH: I am very happy to learn by Prof. Taft that there is not a great difference in regard to the method of educating dentists. I thought there was a wide difference. Of course I am a little modest in regard to expressing my views. I recall an address made by Prof. Hopkins who was a very eminent educator, a man of education as a lecturer. He said that it was a waste of time to burden the education of the specialist at the time that he was fitting himself, and he said that he would rather know everything about something than something about everything. So it is with dentistry. You may know everything about dentistry, make that a specialty in the beginning, and then if one has acquired that little, let him complete his education. Now I deny most emphatically that the dental colleges of to-day do not educate a man thoroughly. The public do not expect us to treat those diseases which have been referred to, with the diseases of the teeth. We refer those cases to the medical men; we recognize the disturbances, but when we pass that we are beyond our domain as dentists, of the recognized domain of the practitioner of to-day. The dentist ought to have a knowledge of biology and geology, he must have a knowledge of anatomy, and these branches are taught in dental schools; and it is taught just as thoroughly, in my estimation, as it is in the better class of medical colleges.

DR. GRAY: I wish to speak from a little experience in regard to the paper just read by Dr. Wright. It pleased me very much, as far as I am able to judge. I like the sentiment expressed in the paper. Physical training will help the muscle of the individual, and also that the mental training would benefit the individual in any pursuit which he may follow. The old adage has it that education will aid any one in any pursuit or any profession he wishes to follow. A great many young men when they graduate in dentistry, do not have the means to graduate in medicine. I know I had not, and so it is with a great many others. But I must say it would be a good thing, but we must do the best we can. A young practitioner, who has just graduated, generally is not rushed with business; and while I was sitting in my office after my graduation, I gave all my spare time to the study of medicine in order to enlighten myself in the profession. A young man has plenty of time to study the medical branches in his office during his leisure hours after he has

gone through with the dental course. I may say from my experience in dentistry that we do not need a great deal of medical science. When I first started out in life I thought I would study the medical profession, and before attending lectures I read medicine a little and I found that to get to the top of the ladder I would have to be a life-time student, and I have found the same thing in dentistry.

DR. HARRISON: I am very much in favor of having a high aim in all callings of life, and while that is the case with the dental colleges that we have in the United States for the education of dentists, and no better advantages in a medical college for the education of physicians, I do not think it is the wise plan to hold out before the students that it is necessary to go to a medical college after they get through with the dental college. I believe that you get all in a dental college that is necessary in the practice of dentistry. Let us not feel that we as dentists are below the medical profession. When I want to practice dentistry, I practice dentistry, and when I want to practice medicine, I practice medicine.

SENSITIVE DENTINE.*

BY DR. T. B. JARARD, VINCENNES, IND.

I HAVE accepted reluctantly the kind invitation of your executive committee to prepare and read a paper on this occasion. I do not expect to offer you much, if anything new, but will try to present this subject in a strictly plain and practical way. So long as our patients come to us in such great fear of pain in dental operations, just so long will we who are practicing dentistry be interested in the cause and treatment of sensitive dentine.

Thousands of valuable teeth in the mouths of nervous, timid patients are going to destruction daily on account of the great fear of pain in operations upon the teeth. In order to bring this subject clearly before your minds, I think it will be well to notice: First, the organization and structure of this tissue. The dentine is a hard, bony substance forming the body of the tooth, and shows a better type of organization than the enamel. It consists of a great number of tubes passing through the dentine

* Paper read at the Indiana State Dental Association.

from the center to the enamel. The tubuli are hardly ever straight, but on the contrary show a great number of curves. The microscopic charts give them a net-like appearance, passing out from the pulp through the dentine are many nerve fibrils and minute capillary vessels distributing in every part of the dentine the nutrient supply of the tooth. Dr. Taft says: "The nutrient supply is carried through the tubes and their branches and most probably reaches the enamel." The dentine is said to have its origin in soft structure, and owing its hardness to the distribution of lime salts, but this latter condition is not accomplished until after passing through the various changes of development. It seems almost certain to me from the structure and organizations of dentine, that sensation is likely caused by the contents of the tubules. Dr. Jack has taken up the subject in Vol. II. of *The American System of Dentistry*, and says: "That it may be considered clearly established that dental sensibility is attributable to the state of the tubular contents, and that it is excited into extreme manifestation by some physical irritation of the fibrillar." Other theories are ably defended by prominent men in our profession.

Let us briefly notice the conditions, causes and treatment of sensitive teeth.

We are often called upon to treat cases where the necks of the teeth have become very sensitive to the touch of the tooth-brush, and are especially so to contact with such chemical agents, as sugar, salt, or strong acids. We think this condition due to the acid-secretion of the submucous glands. This condition is effectually relieved by the free use of prepared chalk rubbed around the necks of the teeth. We are frequently asked to treat patient, whose teeth have become so sensitive that the least variations of temperature causes acute pain, requiring both drink and food to be taken warm. This we think is caused from an acid condition of the system generally. Some author has earnestly recommended that "this condition, when not associated with other constitutional disturbance, will yield promptly to *potassium bicarb.*, in ten grain doses, *three or four* times daily." I think the fluids of the mouth should be tested to see if they are strongly acid or alkaline. When they are found to be acid, alkaline washes may be prescribed. If found to be alkaline, acid washes and acid fruits are indicated. I wish to confine myself principally

to the treatment of sensitive dentine in caries. If we diagnosed as a pathological condition we will proceed in the following manner: Remove as much of the decay as can be done without acute pain, neutralize any free acid with a drop of liquid ammonia, and fill temporarily with phosphate of zinc, thus permitting the acute sensibility to subside. We frequently find teeth in the normal condition extremely sensitive. The fact that we are able to discriminate certainly between the two conditions, does not afford us much satisfaction. What we want is some easily available treatment that will promptly control both conditions. For this purpose we have recommended and tried a large portion of the therapeutic agents known to science, with such indifferent success that our patients still cry out for some relief from the tortures of dental operations. We may accomplish a great deal in this direction by gentleness of manner and touch, by the use of sharp instruments, skillfully used. When a carious tooth has been isolated and protected by the rubber-clam, and the free moisture in the cavity absorbed, the natural heat of the tooth slowly evaporates the water, the fibrillæ retract, and the surface can be removed with less pain than when it was moist. Here, it seems to me, we have suggested to us dehydration as the true secret of promptly obtunding sensitive dentine. There are two principal methods by which this may be accomplished; by evaporation, and by the use of agents which have a marked affinity for water. To succeed by either method it is essential to protect the cavity from moisture, not only when the dehydration is being accomplished, but until the excavation is completed. If we purpose to dehydrate by evaporation, a good plan will be to protect the cavity, thoroughly absorb the free moisture, remove the loose débris, then saturate the cavity with absolute alcohol, and, in a minute or two, absorb it and apply a jet of warm air by one of the appliances for that purpose. In this way the water is evaporated and the fibrillæ retracted to a greater depth than by using the warm air alone. A preparation consisting of equal parts of absolute alcohol, glycerine and tannic acid, has been used with good success. What is known as Robinson's remedy is really an efficient agent. "There are other agents such as dry chloride of lime, potassium carbolate, which have an affinity for water and might doubtless be used with some success." The dehydrators with which I am familiar, and would recommend, are as follows:

Robinson's remedy—absolute alcohol and warm air, alcohol, glycerine, and tannic. Relief from physical pain has been the one great demand. It is the great fact or which forms the daily and almost constant obstruction to the successful progress of our professional labors. Its abolition or prevention should be our constant aim and purpose.

JOINT MEETING OF THE AMERICAN AND SOUTHERN DENTAL ASSOCIATIONS.

[Reported for the OHIO JOURNAL OF DENTAL SCIENCE by "Mrs. M. W. J."]

(Continued from page 577, December, 1888.)

PHYSIOLOGY AND ETIOLOGY.

Chairmen, H. A. Smith, American ; G. S. Chisholm, Southern.
Three papers were read.

The first, by DR. H. A. SMITH, on

IMPLANTATION.

Implantation is regarded by many as a scientific experiment only, while by others it is considered a success. As a basis for this paper Dr. Smith addressed a circular to the most prominent operators known to be working in this line, in order to ascertain the percentage of success or failure, the cause of failure, the supposed mode of attachment, etc. Of seventeen replies, all but two report over 75 % of successful cases, ten reporting 90 % and more. In cases of failure only three report absorption of the root ; seven report that the implanted teeth do assume the color of the natural teeth ; seven others that they approximate in color. Four report the attachment to be vital or membranous, four report it as ankylosis, five as only mechanical. Heitzman and Bödecker, from microscopical examination of a tooth which had been implanted six months and then lost, report bay-like excavations, filled with granulation tissue from the alveolus, but deny any living union between the granulations and the dentine. The question can never be really settled until we can have sections made from implanted teeth in the jaw-bone. Whether the probability of permanent success is sufficient to justify the slight risk of infection, remains to be seen. One patient says he would rather have a tooth re-implanted every year than wear a plate.

DR. J. D. PATTERSON read a paper on

PYORRHOEA ALVEOLARIS,

confirming the conclusions reached in a paper read before the American Association at Niagara, several years since, as to the catarrhal nature of the disease. He concludes that it is a true catarrh having its origin in the oral cavity, in its mucous surfaces, when the mouth is used open in breathing, from the irritation caused by morbid oral secretions from calculi, artificial plates, jagged edges of teeth, etc. The irritated membrane weeps out its protest, and catarrh ensues, pyorrhœa being a true catarrh of the oral cavity. Pyorrhœa, confined to the palatal surface, is often due to an unclean plate. Quotations from Ziemssen, Cohen, and others, were given showing the identity in pathological symptoms of nasal catarrh and pyorrhœa. As to whether it is constitutional or local, it may be one or the other, or both.

DR. LOUIS OTTOFY read a paper on

THE INCIPIENCY OF DENTAL CARIES.

He said that though the disease is universal, we know but little of its cause. This is because of unreliable observations. The office of the dentist is not the best place, being too limited a field; neither are poor-houses nor hospitals. The public school is the best place as affording a better average. The paper was illustrated by a number of charts, giving tabulated results of a large number of examinations. From these charts it appears that there is no difference between the two sides of the mouth; that the upper teeth are more affected than the lower; the first molars most and the cuspids least. In 100 average teeth there will be 26 carious incisors and cuspids, 28 bicuspid and 46 molars, of which 98% will be approximal cavities. Such examinations to be perfect should show the color of hair and eyes, the age and sex, general health, nationality, habits as regards use of brush and dentifrices, color of caries, cause of stains, salivary calculus, period of eruption, etc. Ten minutes would suffice to make such an examination of a child. In going through public schools 1000 could be examined in a year, and the results would be invaluable.

In discussing the subject of Pyorrhœa Alveolaris, DR. GENESE considered boracic acid and aromatic sulphuric acid the most valuable agents, syringing thoroughly with the latter, diluted with

one-half water, and packing around the teeth, night and morning a powder consisting of 1 drachm boracic acid and 1 oz. precipitated chalk.

DR. STORY prescribes a powder of 2 ozs. prepared chalk, 1 oz. lac. sulphur, $\frac{1}{2}$ oz. borate of soda, the first steps being to remove all calcarious deposits, get out all the pus, and destroy all the bugs. This is done by aromatic sulphuric acid, which does not injure the teeth, but restores the surroundings. The process and gums will get well after all the teeth are out!

DR. J. S. MARSHALL described a case which came to him nine months ago. The left upper central incisor was so loose that it could be twisted around with the fingers; the anterior alveolar wall was all gone, and a good share of the posterior wall; with a probe could reach clear to the apex; it was elongated a quarter of an inch, and the patient wished it extracted. He decided to try replanting. He took an impression with plaster-of-Paris, and made splints to cover the six anterior teeth on the palatal surface and labial edge. On extracting he found three little calcarious points on the anterior surface of the root, not altogether as large as a pin head. The pericementum was partially dead. The remains of the live pulp were removed, the root treated with bichloride of mercury and filled. The socket was deepened, the tooth put in place and the splints cemented to the teeth. The patient wore the splint for four months, when it was removed. The tooth was found to be attached, but not very strongly, and it was replaced for three months longer. It has now been off for three months. There is a slight recession of the gum, and the tooth is slightly loose, though scarcely perceptible. There seems to be a reproduction of alveolus, and he considers the operation a success.

DR. ATKINSON related a case, the patient being the wife of a brother of Prof. Dorrance of Ann Arbor. She had not lost any teeth, but the superior anterior teeth were all loose, the gums tumid with pus exuding; the left superior lateral incisor projected half the length of the crown below the line of the central and cuspid, and was so loose that it played backward and forward. He tied the tooth firmly where he wanted it to be before cleaning it, then with a sharp corundum wheel trimmed it so that it would occlude properly, washing out to get rid of débris, and drying with bibulous paper, he dropped in aromatic sulphuric acid, full

strength, till the *pools* were all filled, and soaked in, saturated, (having wisps of bibulous paper placed so as to protect the tissues under the tongue and inside of the lips). He used common bicarbonate of soda to get rid of the acid on the teeth. He did not attempt to remove calcareous deposits, the teeth being so very loose that there seemed to be no bony socket only cartilage. The next day the patient said she had eaten comfortably for the first time in a long time. The next day he worked very cautiously for four hours, removing deposits, pushing towards the apex so as to drive tooth into the socket. If any portions are found not cooked by the sulphuric acid, but looking like what we used to call *proud flesh*, touch with sulphuric acid till it turns grey, and then dry with bibulous paper. A paste of calomel and glycerine is good to lay in the pockets. If the sulphuric acid has not done its work perfectly at the end of a week, a change must be made, and a caustic paste substituted, $1\frac{1}{2}$ to 2 parts caustic potash to 1 part carbolic acid crystals makes a perfect paste if mixed in a mortar set in boiling water, not a drop of water being allowed to enter the mixture. This dry paste is to be broken into small pieces with tweezers, and laid around the teeth, beginning at the most distant. It will melt and do its work, the application seldom having to be repeated. In this case there was no alveolar process, but in less than three months everything was firm and healthy, with no sign of ever having had any trouble. The teeth should all be tied firmly with knots of silk, and made to occlude by trimming with corundum wheels. All of the thick swollen appearance has subsided, though the bony process is not yet entirely built up.

DR. W. N. MORRISON said that deposits can be removed from very loose teeth by using a very delicate long bladed spicula forceps, with one beak resting on the incising edge of the tooth to steady it. By the closing motion the deposits are scaled off.

PROF. TAFT said that the examination of a case of pyorrhoea meant more than to see that the gums are separated from the teeth, deposits upon them, detrimental tissue around them. More than all that. We must inquire into other conditions—is nutrition good? Will the system resist irritants? What digressions from health and how far? All this and more is embraced in a thorough diagnosis of the case. What do we find? Local irritation; foreign substances between the gum and the roots; undue

pressure on a tooth; teeth partially loosened; some overtaxed in mastication, others not used at all. All these conditions must be remedied. The gums take on diseased conditions from various causes; the susceptibility of tissues is a factor, some yielding readily to the least irritant. To secure the best remedial results all these things must be considered. In the treatment all irritants must be removed, all organisms destroyed. He prefers pure sulphuric acid 1 to 7 to aromatic sulphuric. This cauterizes all dying, half dead, or dead soft tissues lining the socket. Sometimes chloride of zinc, or caustic potash and carbolic acid, act better than sulphuric acid. We must expose a good clean surface of living tissue from which plasm can flow out, and granulation take place with adhesion to the root. But one should not keep on dabbling with it; he should let it alone when he has put it on the road to reparation. One man said he had lost all faith in sulphuric acid, for he had used it ten times on one case and it was worse than at the beginning! No wonder; it should rarely be applied more than once. Get the soft tissues so that healthy plasm is thrown out; then let them alone; they must get well.

DR. STORY said he had done all of this, in all of these ways, and yet the patients came back in from six to twelve months as bad as ever.

DR. TAFT said that either the treatment was not thoroughly completed, or there was uncleanness in the mouth, or there was a low condition of the nutrient forces. A physician in dismissing a convalescent patient never insures him that he will be free from disease; he is always liable to get sick again, but it is none the less true that he was cured.

ANATOMY, PATHOLOGY, SURGERY.

Chairmen, H. A. Smith, American; E. S. Chisholm, Southern.

DR. H. A. SMITH, making the report for this committee, spoke of the wonderful advances in surgery recently made, especially in the transplantation of tissue from man to man. Grafting or transplanting of bone, skin, mucous membrane, nerve tissue with restoration of function, and cornea with restoration of sight, are numbered among the recent triumphs of surgical science. Cocaine and the various antiseptics are factors without which these operations would not be possible.

DR. J. S. MARSHALL gave the history of a case reported at

the International Medical Congress last year. A section and a half in length of the lower maxillary having been removed with an osteo sarcoma. The ends of the bone had drawn together drawing the median line of the chin far to one side, causing reflex neuralgia in the shoulder and great suffering. Dr. Marshall broke up the attachments and placed the jaw in normal position by suitable apparatus, which entirely relieved the neuralgic pain. Twelve small pieces of rabbit bone were inserted in the space, filling up one inch, with perfect success. An attempt to fill the remaining half-inch with a single piece of bone, failed.

Dr. Marshall also gave the history of a fatal case of alveolar abscess. When he first saw the case the face was very much swollen and infiltrated, the swelling reaching down the neck to the clavicle. A few days previously the hospital surgeon had opened it externally to get rid of the effusion cutting the facial artery causing severe hemorrhage. An offensive discharge was oozing from the cuts. The wisdom tooth has been very painful for three weeks and was very sore to the touch. The tongue was very badly swollen and solid food could not be swallowed. The patient was etherized and Dr. Marshall extracted the wisdom teeth. Masses of necrotic tissue to the amount of 4 ozs. were removed from the neck under the jaw. The patient improved after the extraction of the wisdom teeth, but the ligatures of the artery sloughed off and profuse hemorrhage left the patient very weak and pale. Full details of antiseptic treatment—state of pulse, temperature, respiration, etc., were given by Dr. Marshall. The case terminated fatally, Dr. Marshall attributing the fatal result to an alveolar abscess allowed to run too long.

Dr. ATKINSON thought the extraction of the wisdom teeth, with such extensive necrosis of the soft parts, the stepping stone to death.

Dr. CRAWFORD spoke of the influence of the wisdom teeth in leading to serious consequences. He was surprised to hear Dr. Atkinson condemn the removal of the teeth under the conditions described. He could not see that any other procedure was possible. The wisdom tooth was the exciting cause, which had to be removed.

Dr. J. D. PATTERSON considered that death was due to exhaustion from the hemorrhage, the chief factor being the blundering operation of the horse surgeon in severing the facial artery.

DR. SUDDUTH spoke on the subject of Implantation. He said that while the operation of implantation was being generally accepted, the old methods of replanting and transplanting should be condemned, being usually an attempt to place a diseased tooth in necrosed tissues, abscessed territory, for it is only under these conditions, as a rule, that a tooth is extracted. Everything is against success in such an operation. In implantation, on the contrary, a sound tooth is selected, and a socket is made in healthy territory, when there is no retrograde tendency to overcome. A fresh wound is made, in healthy tissue, from which we may expect healthy exudations forming fibrous tissue and bone cells. He does not consider that there will be any vital connection, but bony ankylosis. Younger commenced the practice in a crude way, but Kirk has placed it on a high scientific basis. From all records kept the pain seems to be very slight and the attachment very firm. He hopes experiments will be made in the lower animals where successful cases may be studied. In case of our patients we can only search for the cause of failures.

DR. MORGAN found there would yet be serious results from the introduction of dead matter into the human organism, which nature will not tolerate, except as encysted.

DR. B. H. CATCHING reported experiments in implanting porcelain teeth, with roots of natural size and shape, made for him by Dr. Genese, of Baltimore.

DR. ATKINSON wished to give a word of caution in regard to the use of peroxide of hydrogen. It is not safe unless we are sure that it is of really good quality. Unless it is kept in a very cool place its "combining grip" is so slight that above 60° it readily disassociates. Even when pure, it moves in the line of least resistance and he has seen mouths perfectly bloodless, entirely white, from too much peroxide of hydrogen. It has strong affinity for pus.

DR. ABBOTT thought the retention of the implanted tooth due to the close fit of the root in the socket made for it, fibres of granular tissue from the surrounding membranes also growing into the inequalities of the dead tooth.

DR. H. A. SMITH thought a fit if done as described by Dr. Abbott would induce a high grade of inflammation and cause disintegration.

DR. SUDDUTH thought a more fibrous union would not cause

the tooth to give the sharp resonant sound observed in firmly implanted teeth.

DR. TAFT said that the subject of sponge grafting threw some light on this subject. He did not consider the implanted tooth dead in the truest sense. The sponge used in grafting is not more living than the cementum of the implanted tooth, which is organized material, structurally ready to receive the plasma thrown out by the surrounding tissues, and which displaces the organic material, as in the sponge graft. Nutrition is afforded, and firm attachment takes place. No other hypothesis explains the facts observed, but it is a theory which needs demonstration and proof.

On motion of Dr. Taft it was agreed that all remaining papers be read in succession and discussed all together from notes taken during the reading. Otherwise the best papers were liable to be read hastily, or by title, or not at all.

DR. J. R. KNAPP read the report of the committee on Prosthetic Dentistry, Metallurgy and Chemistry.

He enumerated the many recent valuable additions to our literature in this branch, gave the history of the uses of aluminum in dentistry, and the improvements made; the value and the danger of cocaine; the improvements in crown and bridge-work, etc.

DR. GENESE read a paper on

RUBBER

deprecating the total condemnation of this material which has its place and its value, requiring only perfect workmanship, by methods and apparatus which he described.

DR. J. TAFT made a verbal report from the committee on Dental Education, Literature and Nomenclature.

Five papers were presented by this committee and read.

DR. LOUIS OTTOFY read a statistical paper on

DENTAL EDUCATION,

giving a list of dental colleges, the number of matriculates, and of graduates, etc. He pointed out the disadvantages of the present system, as regards *time* allowed the student in which to prepare for graduation, and spoke of the fostering influences enjoyed by dental departments of medical schools and universities. He also spoke of the importance of the study of dental hygiene in

the public schools. The study of hygiene and physiology is now obligatory in many States, but dental hygiene is scarcely touched upon in the text books now in use, though it should be made a special feature.

(To be continued.)

Compilations.

"Gather up the Fragments."

SOME AFFECTIONS OF THE GUMS.

BY FRANK LANKESTER, L.R.C.P., M.R.C.S., L.D.S., ENG.

(Continued from page 39.)

THE condition known as *General* or *Congenital Hypertrophy* of the gums and alveolus is exceedingly rare. It occurs chiefly in children, and with it is frequently associated some other tegmentary hypertrophy, such as a thick skin, coarse hair and nails, etc. The whole or the greater part of the gums and alveolar processes are involved in a general hypertrophy. The greatly enlarged alveolar processes are covered by the much thickened gums; the latter being pale, inelastic, firm and insensitive. The growth may increase to such an extent as to prevent the perfect closure of the lips. The teeth are often quite hidden; especially is this so in the front of the mouth, where the condition is always more marked. Both jaws are usually affected. The thickening of the gums is due to an immense increase of the fibrous tissue, together with an enormous enlargement of the papillæ of the mucous membrane. The teeth, too, are of an immense size comparatively. The progress of the disease is slow and unaccompanied by pain, nor is there any tendency to ulceration. The treatment consists in paring off the lobular masses of the gum, and then in excising the hypertrophied alveolus with a pair of bone nippers. The whole of the growth need not be removed in one operation. There is but slight tendency for it to recur. This treatment involves, of course, the loss of the teeth, but they are more than useless so long as the hypertrophy exists.

We will now pass on to consider an obscure, though some-

what important affection, known as Riggs' disease, or a better and more correct name is *Pyorrhœa alveolaris*. It is not so very uncommon, and consists in a rapid and premature loss of the alveolar processes, together with a certain amount of inflammatory disturbance. One of the first indications of the advent of this disease is seen in a thickening and rounding of the margins of the gums on both sides of the mouth, and they cease to be closely adherent to the necks of the teeth. Between the gums and cementum for a short distance there is generally a little pus to be found. The breath is foetid or nauseating, and there is a considerable amount of offensive discharge.

Neuralgic pain is often present, as also a chronic inflammation of the gums. It sometimes follows scurvy and mercurialism. The causes and pathology of the disease are very obscure, but there are a good many reasons that point to its being a part of a constitutional disease. Treatment is very far from successful in curing this affection, and it rarely does more than temporarily retard the progress of the disease. It consists in first of all removing very carefully and thoroughly all tartar from the necks of the teeth and from within the margin of the gums, and as the seat of the disease is probably at the edges of the alveolar processes, it is sometimes very beneficial to scrape these processes; it, however, gives considerable pain. Some strongly advocate the use of caustics, etc., to be applied to the edges of the gums, and to be rubbed well up towards the necks of the teeth within the gum margins. The following are those most in vogue—Powdered sulphate of copper, iodoform, aromatic sulphuric acid, chloride and iodide of zinc. As the disease progresses, the alveolus becomes more and more absorbed, the teeth get loose and finally fall out.

We now pass on to about the last, though by no means the least important, of the local affections of the gums; in fact, so far as the patient is concerned, it is by far the most important of them all, and such is the point of view in which it should also be regarded by the dental practitioner, though it may not come under his notice nearly so often as some of the other affections. He may perhaps never meet with a case in his own practice, and yet I hold that he should be thoroughly well able to diagnose it should a case come under his notice or care. I refer, as you know, to *epithelioma* or *cancer*, and sometimes *wrongly* called

malignant epulis. This latter term should only be applied to those myeloid sarcomatous tumors of the jaw that Mr. Heath has described. I have not time to say anything more about this latter affection, and it hardly comes within our category to-night, but there is a very typical specimen of one under the microscope in which you can well see the large myeloid or giant cells scattered about amongst the smaller spindle-shaped sarcomatous cells. Towards the surface are a few fragments of the expanded bone which appear of a yellowish color; you will observe a great difference between this specimen and the fibroma, which you have already seen.

After this slight digression we will return to the consideration of *Epithelioma* originating in the gums. It is generally due to some long-continued irritation such as that excited by the wearing of an ill-fitting artificial denture, or the presence of unhealthy roots, to which may often be added a strong hereditary predisposition to cancer. I don't think we should lose sight of this fact when dealing with artificial work. Any ulceration of the gums or mucous membrane of the mouth occurring in an elderly patient, and which does not readily yield to treatment, but rather tends to grow worse, should be looked upon with very grave suspicion as to its nature. These cases are generally first seen by a dentist, and often at a comparatively early stage of the disease, at a time when it may be a matter of life and death to the patient that the disease be recognized at once and properly treated. I fear that if such a case at an early stage of the disease were presented to the average dentist of to-day it would in but too many instances merely receive palliative and expectant treatment; meanwhile the disease would go on steadily but surely progressing, valuable time would be lost, and when at last the dentist hands it over to the care of the surgeon, all hope of a radical cure may be gone forever, or at least be much more doubtful. Hence the great importance of the dental practitioner being thoroughly well acquainted with the disease, its diagnosis, and serious prognosis. It generally occurs in persons over forty years of age, and usually in the form of a warty or papillated growth, which ere long tends to ulcerate and break down in the centre of its free surface, whilst it continues to spread circumferentially, by invading the surrounding tissues. There is great induration of these tissues all around the growth. The central ulcerating por-

tion soon becomes deeply excavated, the edges become raised and everted, ragged and irregular, and considerably undermined. The surface is sometimes very vascular, and bleeds readily on the gentlest touch. It has a dirty, unhealthy appearance, is of a greyish color, and there oozes from it a little thin sanious discharge. The growth soon involves the adjacent tissues, such as the cheek, tongue, etc., the teeth in the affected area become loose and fall out, and it is not very long before the submaxillary lymphatic glands in the neck become secondarily affected. There is generally more or less pain, and sometimes it is very severe. The lower jaw is more frequently affected than the upper. Mr. Christopher Heath says that nothing but very free and early removal offers the patient a chance of permanent relief, and that it is much better to remove a piece of the whole thickness of the jaw well beyond the seat of the disease rather than merely the alveolar margins, since you can never tell how deeply the bone may be involved. This leads necessarily to permanent disfigurement, but by doing less you are running a very serious risk of its recurrence. It is, of course, a case for a surgeon to treat, but it is occasionally the dentist's duty to diagnose and hand over such a case to the surgeon.

We will now pass on to consider some of the *Constitutional affections*, and will take, first, that somewhat rare affection known as *Purpura hæmorrhagica*, in which disease the gums are more or less affected. It requires medical treatment, so I will not do more than mention it here. It occurs chiefly in the young and debilitated, and is characterized by extravasations of blood in the form of red points or *patechiæ* beneath the skin and mucous membranes, including the tongue, lips and gums. These resemble somewhat the small extravasations of blood that one not infrequently sees after having had the skin pinched unpleasantly hard, as with a pair of pliers, etc. There is always a tendency to hemorrhage from all the mucous surfaces of the body, and it is only its rare occurrence that makes the disease comparatively unimportant. It may prove serious from the persistence of the hemorrhages and the difficulty of arresting the same.

Another disease now happily also rare is *True Scurvy*, in which also we find extravasations beneath the gums. At first, merely the edges of the gums become somewhat swollen; the condition increases and lobulated masses form and rise up around

and between the teeth, so that the latter may even be hidden. The gums get very spongy, insensitive, and of a blotchy deep red or livid color, and they are very apt to bleed; indeed, in severe cases blood oozes continually from the gums. Ulceration and sloughing may supervene and lay bare the necks of the teeth. The latter may get loose and fall out. The breath is generally very foetid and there is also a liability to submucous hemorrhages. It occurs chiefly in navies who live badly and take but little vegetable food. The *treatment* belongs to the general practitioner, and consists first in remedying the cause, whilst locally antiseptic and astringent mouth-washes will help the swollen state of the gums to quickly subside.

There is another condition of the gums known as *False Scurvy*, which is frequently met with in persons who neglect to clean their teeth, and are in feeble health. Salter describes it as consisting essentially of a vascular dilation of the papillary and other capillaries, with a general thickening of the gum itself. It is a condition that can soon be remedied by improving the health and the use of a tooth-brush with astringent mouth-washes to get the mouth and teeth sweet and clean. The gums will then soon resume their normal appearance.

(To be continued.)

Editor's Specials.

"Write the Vision and make it plain."

CLIMBING AND DIGGING.

"Whether we dig in the mines of knowledge, or climb the hill of science,
Each deep explored reveals a deeper depth,
Each height attained displays a height beyond."

And this seems as true as it ever was in the late and present researches on the subject of dental caries; but we hope and trust that there is to be no laying down of the picks and shovels, nor hanging up of the climbing grapnels, on this account. Is the route practicable? said Napoleon to his chief of pioneers. It is barely, if at all passable, was the reply. Forward march! was the immediate order. We admire this spirit, and glory in the

researches referred to, and would like to speak to these "children of Israel that they go forward."

Lack of strength, aided by a snowstorm, keeps us enthroned to-day on our easy chair, and looking up toward the source of all knowledge, we write with our paper above us, full of hope that we may yet live to see the great reproach of our profession removed—the darkness dispelled by the pure light of scientific knowledge. For as long as the nature and causes of dental decay, the most common ailment of our race, are not understood, professional science has failed along one of its lines.

This subject of dental caries was considered, to some extent, in October last, at Syracuse, N. Y., at a union meeting of four New York District Societies. Dr. I. C. Curtis read a chemical paper, of which we have seen but a synopsis, and from this we infer that the paper was carefully prepared. The report states thus: "Assuming that phosphoric acid has less affinity for calcium than the other acids named, Dr. Curtis showed by formulæ the results of placing tooth-structure * * in dilute nitric, nitrous, sulphuric, sulphurous, (and various other,) acids."

We simply wish to inquire if such assumption is warranted. The calcium phosphate in dentine, etc., is a sub-salt, and will endure a prolonged white heat without decomposition or separation of elements. And when nitric, hydrochloric, and similar acids act on it, they do not separate its elements. They can take the salt, but cannot take its lime from phosphoric acid.

Sometimes a sub-salt seems to play the part of a base in chemical reaction, and perhaps, this may throw light on part of the process here alluded to.

Another thought suggested in the synopsis of Dr. Curtis's paper needs to be considered with slight allowance. It is expressed thus: "Happily potassium, sodium, and magnesium have more affinity for acids than calcium." Some of the modifying circumstances have great influence here. Suppose the resulting calcium, or lime salt should be insoluble, it will be formed at the expense of the others, nearly, if not entirely to their exclusion.

An esteemed brother mildly commends the paper, and adds, "yet it must be remembered that in the mouth we find these acids so diluted that the reactions do not occur." How diluted? It is almost self-evident that if acids, not excepting that made by microbes, are the immediate causes of dental caries, they are each

formed at the point of attack, and an atom of *nascent* acid cannot be much diluted. And right in this line there seems to be more or less confusion of thought. Acids eaten with fruits, or taken as medicines, cannot be the *immediate* causes of dental caries. They may act on the teeth, abrading and roughening their surfaces, so as to afford lodgment for foreign, fermentative materials that may result in the formation of carietic agents. But in such cases, these acids are but *predisposing* causes.

The same friend is reported as saying that in his opinion fermentation "lies at the very foundation of all dental chemistry." Probably the speaker didn't state it quite so strong; for he will hardly hold that it lies at the foundation of refining gold, which is a part of dental chemistry.

Further on a venerable and highly respected member says, if correctly reported, that "fermentation will account for much of the phenomena of caries which chemistry will not account for." But is not fermentation a part of chemistry? And this friend reminds us that "we must admit that we have not learned all of chemistry." True, but of which science have we learned all?

Another brother finds the buccal fluids ropy and alkaline, with active decay in the mouth. Certainly! Whenever the mouth is found in that condition, expect white decay, not immediately caused by the alkali, however, but by nitric acid. Treat the constitution till the alkalinity is removed.

These remarks are not to be regarded as at all a criticism. We wish our readers to know that the subject of caries is receiving a goodly share of attention, as it certainly should. And it is clearly noticeable that as yet we have reachings rather than results. And it is worthy of notice, that the advocates of the microbial theories of decay, are settling back to the theory of acids being the *immediate* agents of caries of the teeth. We no longer hear of the little fellows or things going through the natural openings of normal enamel to destroy the dentine, but now it is claimed that they produce an acid that does the business. Or may it not be that the acid is caused, after all, by chemical action on their materials, or dead bodies?

But the fact remains that dental caries is not unitary, and its different types or varieties cannot be caused by any single agent. Every observant dentist must know that in many cases of decay, we find the cavity nearly filled with organic matter, nearly or

totally destitute of lime salts. Something must have dissolved the salts, or they could not be washed away.

We find another cavity with the organic matter broken down as well as the inorganic, a soft, or semi-solid *débris* generally lying in the cavity. No one can believe that this has been caused by the same agent that caused the other variety. We merely wish to hint that not much true light is gained while dental caries is regarded as a single morbid condition.

Let the researches go on. We want no stagnation.

CRIME AND PUNISHMENT.

THOUGH opposed to mob violence and Lynch law, we are glad that Dr. Frank O. Jacobs has been "caned." He deserved it. To feed people what they don't need, and at unseasonable hours, is a grievous wrong. It seems that Dr. J. coaxed the State Microscopical Society up to Newark and fed it; and for aught that we know to the contrary, foundered it till its toe-nails have come off. Yet, as criminals often do, he went right into a trap, by going to another meeting of the society at Columbus, and the *Journal* of that city tells of his arrest and punishment, as follows:

"After the exhibition and discussion, Dr. Detmers created a little breeze by rising to a question of privilege to punish the serious offense of a member who had conspired with Newark people last August in leading the members of the society into a strange land and overloading their stomachs with delicacies. 'I am not a cruel man, but mild mannered, and here you shall have your punishment,' said the Doctor, advancing suddenly upon Dr. Jacobs in a threatening manner, and presenting him with an elegant gold-headed cane, in behalf of the State Microscopical Society. Dr. Jacobs was somewhat taken by surprise, but made a brief acknowledgment."

DUNN'S MEDICINAL SYRINGE.

WE call the attention of our readers to the advertisement in this issue, of this popular syringe. It has been so highly endorsed and recommended by all who have had an opportunity of testing its merits, that there seems to be no necessity for more than merely calling attention, of those who have not seen the instrument, to it as it appears in the advertisement.

B.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

FILING GLASS.—The *Pharmaceutische Centralhalle* states that glass may be filed easily and without danger of breaking by dipping the file into strong soda lye and then, while still wet, into coarse sand.

HEMORRHAGE.—The hemorrhagic tendency may be controlled, very frequently, by hypodermic injections of ergotine dissolved in thirty times its weight of a mixture of pure glycerin and water in equal parts.—*Med. Brief.*

BAD BREATH.—For bad breath from any cause, Listerine either internally or as a mouth-wash, full strength or diluted, is a good deodorizer. Physicians often prescribe it in self-defense against the foul breath of excessive tobacco consumers.

A GERMAN REMEDY FOR SWOLLEN FEET, which should prove useful to dentists and others whose business keeps them upon their feet all day, is composed of 3 parts salicylic acid, 10 parts starch and 87 parts of pulverized soapstone. This, sifted into the shoes and stockings, keeps the feet dry and prevents chafing.

ICHTHYOL four drachms, fresh lard two to three ounces, rubbed in freely, is very beneficial in enlarged glands, erysipelatous skin and in the swollen and stiffened joints of a convalescing case of acute rheumatism. Two to five drops encapsuled internally is said to surpass the salicylates in inflammatory rheumatism.—*University Med. Mag.*

CHROMIC ACID IN EXCESSIVE SWEATING.—A circular has been sent to all the Prussian Army medical officers, advocating chromic acid as an economical and efficient means of checking excessive perspiration. In hyperhydrosis of the feet, the application of a ten per cent. solution repeated every three or six weeks, is sufficient to prevent any inconvenience from this source.—*Med. Brief.*

OIL OF PEPPERMINT as an antiseptic appears to be gaining ground. The fact of its being non-poisonous would suggest its usefulness for dental purposes. Prominence was given to its value as a surgical dressing by Mr. Leonard Braddon in the *Lancet* some time ago. It is stated to be a powerful germicide, acting quickly and, whilst readily diffusible, does not evaporate so speedily as to be rapidly exhausted.

COCAINE IN DENTITION.—M. VIGUIER has proposed the following to relieve the pain which children suffer when cutting their teeth, especially the canine teeth :

| | | | | | |
|---|-----------------------|---|---|---|-------------|
| R | Cocaine Hydrochlorate | - | - | - | 2 grains. |
| | Syr. Simp | - | - | - | 2½ drachms. |
| | Tinct. Saffron | - | - | - | 10 drops. |

M. Sig.: Rub the painful parts of the gums many times a day.—*Med. Brief.*

A VERY NEAT AND EFFECTIVE BLOW-PIPE can, according to DR. R. W. CHASE, be made by attaching a piece of rubber tubing to the gasometer or cylinder of gas, using an ordinary mouth blow-pipe attached thereto, the pressure of gas against the flame of an alcohol lamp makes a nice flame for soldering gold crowns, bands, etc. By this method dentists who do not have illuminating gas to use for such work, will find the above all that is desired.—*Dent. Office and Lab.*

OXYPHOSPHATE OF ZINC.—DR. E. S. GAYLORD says: After the cavity is prepared and thoroughly dried, with a small piece of bibulous paper, slightly moistened with the cement fluid, paint the entire surface of the cavity, just to moisten (do not flood it), then proceed to insert filling in the usual manner. Filling to be removed, must be cut out with bur or drill, as it adheres perfectly. In cementing crowns, etch the surface of the gold, or other metal, with an ordinary excavator, bur, or any sharp instrument, and proceed as above, with a similar satisfactory result.—*Archives.*

MERCURY.—The best way “to do” with mercury, especially the “chemically pure,” is to wash it in diluted nitric acid, and afterwards in pure water. Keep it in a glass bottle holding one to two ounces, stopped with a cork through which is put a “chicken quill,” the end of which comes to a point. At this point a hole is made for exit of the mercury. Cover the mercury with alcohol. This keeps the metal bright and clean. The glass

bottle enables you to see the mercury—an advantage. When the bottle is inverted for use the mercury fills the quill and the alcohol always “gets on top.”—B. H. T. in *South. Dent. Jour.*

ABSCCESS IN THE MIDDLE EAR MISTAKEN FOR TOOTHACHE.—DR. A. D. WILLIAMS says: Early in February a young man had what he took to be toothache on the right side of the upper jaw. He consulted a dentist, who could find nothing wrong with the teeth and referred him to me. On examination I found a well-marked abscess in the right drum. The upper back portion of the membrane was bulged outwards to the extent of a pea. When punctured, pus escaped at once, and when air was blown through the drum considerable more was forced out of it. I need hardly add that this promptly relieved the “toothache.” Reflex irritation between the teeth and the ear is usually from the former to the latter. In this case the usual order was reversed.—*St. L. Med. and Surg. Jour.*

TREATMENT OF INFLAMED PULPS.—It always seemed to me difficult to understand why an inflamed or exposed pulp should be treated differently from any other wound. The essentials of success in the treatment of exposed pulps are: First, cure the trouble; second, render the cavity and contents aseptic; third, protect the pulp perfectly without irritation, and shield it from heat or cold. If we want success in these cases, we must recognize the fact that septic poisoning is always possible in the mouth. These essentials can be secured by a variety of methods, where the operator is skillful and the opportunity favorable. The treatment may be thus summed up: Removal of irritants, protection of the pulp from further irritation, and counter-irritation.—DR. EDMUND NOYES, *Illinois Trans.*

MANIPULATING COPPER AMALGAM.—DR. OSMUN says: Obtain an amalgam which does not contain an excess of mercury, heat slowly, and at first sign of appearance of mercury drop into a glass mortar, and work it into a mass. This will at first appear granular or as a powder in this condition, without the addition of mercury, it must be placed in the palm and worked until it becomes quite plastic. The amalgam treated in this way is quick setting and can often be polished at the first sitting. This, however should not be final. The great objection to copper amalgam is that it will become blackened. The rule is not invariable, but

in a majority of cases if the patient can be made to return in ten days or more from the date of insertion of the filling, the surface may be thoroughly polished, and subsequently does not become black.—*Dent. Review.*

PREPARING ROOT-CANALS.—DR. LOUIS OTTOFY says: As a rule, the drilling, reaming, or any other method of enlarging root-canals, is pernicious practice and should be almost entirely abandoned. When a proper entrance to the pulp-chamber has been secured, before any effort has been made to enter the root-canals, the reaming or enlarging of the canal will not be found necessary. Opening into a pulp-chamber and securing an entrance into a root-canal should always be done under perfect antiseptic precautions; for this purpose flooding the cavity with a one to two hundred solution of bichloride of mercury has been recommended and found very efficacious. The objections to its use in this way are: its property of corroding the broaches used, thus rapidly destroying instruments, which should always be delicate, and its other property—said to be very marked—of coagulating albumen. The oil of cassia, which is very diffusible, I have been led to employ for this purpose, with very satisfactory results.—*Ind. Prac.*

TAKING LOWER IMPRESSIONS.—DR. F. C. GREEN gives his method as follows: I use a very narrow impression cup, one not much wider than the alveolar ridge; fill the cup with plaster, very soft, adding a little sulphate of potash to make it set rapidly. When hard, remove from the mouth, and with a small scraper, remove a thin layer over the entire surface of the impression; trim the edges, and especially the portion under the tongue. Place the impression in water for a few moments and when thoroughly wet fill it with very thin plaster, not thicker than cream; place it in position in the mouth with gentle pressure; observe that the buccinator muscle be not impinged upon, and request the patient to raise the tongue, letting the point rest upon the cup. When hard, remove, and if each step of the process has been carefully taken, the result will be an impression from which a plate can be constructed that will not rise or rattle while speaking. I never use anything but plaster for taking impressions of the mouth, believing it to be the only reliable material for this purpose.—*Archives.*

A NEW FORM OF PORCELAIN CROWN WITH GOLD COLLAR ATTACHMENT.—DR. FRANK CHASEMORE says: I have devised a method, and the following is the mode of construction: The root having been prepared in the usual way for all-gold crowns, an impression and bite are taken and a zinc die cast. To this the band is fitted, and the joint soldered half-way up. A suitable tooth is selected from stock and backed with a plate bent to the curve of the underside; the pins are turned over against the backing to fix it securely and the plate trimmed to the contour of the tooth. The band is now fitted to the cast and the upper edge filed away to fit the edge of the backing of the tooth, the edges of the unsoldered part of the joint being cut away, if necessary, to allow of the band being brought to the required size. When the occlusion is perfect, the tooth is fixed to the band with wax and the whole removed from the cast. The crown is now turned mouth upwards and a little wax melted into the interior to fix the parts together, so that the first wax can be removed, and the crown invested in plaster and sand, mouth upwards, and the joints soldered *inside*. When the band is finished and polished, the crown can be cemented to the root in exactly the same manner as a gold crown.—*Dental Record*.

SHOEING ABRADED TEETH.—DR. VAN WOERT proceeds as follows: The dam being thrown over the teeth, to be operated on, the top of one is ground with a corundum stone sufficiently to allow a piece of gold plate (20 k, 18 g) to rest between the occlusion. A piece of this plate larger than sufficient to cover the end of the tooth, is cut, and after annealing burnished into the irregularities of the surface, until an accurate cap is fashioned a little large over all the edges. It is next held firmly in position whilst a hole is drilled and tapped through it, and into the tooth. The gold screw is then turned into it, but not through the gold cap, and the under side being smeared with the oxyphosphate the cap is again placed in position and the screw screwed into the tapped hole in the tooth. Sufficient time is allowed for the setting of the cement, during which a second tooth may be prepared. As soon as the cement is hard two or three more holes are drilled and tapped and screws placed. The overhanging edges are trimmed away with corundum, care being taken that the stone revolves away from the edge so that the bur of the gold is turned over the edge, making a perfect joint. Sometimes the occluding

teeth on each side of the mouth will save a whole denture if thus treated. If it is deemed advisable to cap the molars and the surfaces are quite irregular even after stoning away, burnish a piece of platinum over the irregularities and flow gold plate over it. This makes a close fitting and very durable cap for this purpose. It should be set in the same way.—*Dent. Review.*

SYPHILIS CONTRACTED THROUGH STRIKING THE KNUCKLES ON THE TEETH.—A correspondent says in the *Brit. Med. Jour.*, a laboring man came in August last, complaining of weakness, *malaise*, sweating on slight exertion, not feeling up to his work. Tongue slightly furred, temperature 100°, previous health good in every way. I could find nothing to account for his state at first, but, noticing his left hand bandaged, he admitted there was a sore on the knuckle, which had been under treatment for some time by a woman, but was very slow in healing. Uncovering the hand, I found a perfectly circular sore, the size of a threepenny piece, with clean-cut edges, bright red, without discharge, and surrounded by a purple area of very well-marked induration. It turned out that he had had a dispute with another man about three or four weeks before he came to me, and that this man, who was somewhat intoxicated, had angered my patient so much, that the latter had struck him a blow in the face with his left hand, scratching his knuckle in doing so by contact with the other's teeth. There was no other probable source of infection that could be made out.

I put him on large doses of potassium iodide, and in a week or so there was marked improvement in all the symptoms. In brief, he was soon well, thus confirming the diagnosis.

Being curious to trace the origin of the infection to its source, I wrote to the surgeon of a distant mining settlement, to which my patient's antagonist had since gone, asking him to keep an eye upon the man, and report to me. After some weeks I received a reply from him to the effect that our man had turned up to consult him about well-marked secondary and tertiary symptoms of syphilis, contracted, as he admitted, two years before, and for which he had been under treatment.

A GLOSSARY OF MICROBES.—MR. W. HAMLET gives the following classification of the microbes (microscopic organism of fermentation and disease): 1. Microbes which appear as points are

called *monads*, *monera* or *micrococci*. They are motionless, and may be regarded as the spores of other microbes. 2. Motionless linear microbes—the *bacteridians* and the *bacilli*. To them belongs *bacillus anthraxis*. 3. Cylindrical mobile microbes, having rounded ends or contracted in the middle so as to form an 8, are the *bacteria* proper. Among them is *bacterium termo* of putrefaction, the commonest of all. 4. Flexuous mobile microbes. They look and act like eels, and differ but little from the equally active bacteria. They are the *vibrios*. 5. Spiral microbes, resembling a cork-screw and mobile; *spirilla* *spirochetæ*. Their presence in human blood appears to be connected with intermittent fever. 6. Microbes with heads, very active, having globules larger and more refractive than the rest of the body at one or both ends. These globules are apparently spores ready to be detached from a bacterium—*bacterium capitatum*. Besides these six principal states, the microbes form agglomerations or colonies that often notably change the aspect of the elementary cells, and which have received various names. Agglomerations in microscopic masses, surrounded by a jelly that sticks them together and deprives them of motion, are called *zooglæa*. A non-gelatinous membrane formed of motionless bacteria is *mico-derma*. Bacteria attached end to end in a string form filaments of *leptothrix*. A number of spherical micrococci joined one after another form the string of round grains called a *torula*. A considerable number of species may be included in each of these divisions; and there does not appear at present any way to distinguish by sight a disease-producing bacterium from a harmless one.—*Pacific Record*.

LOCAL ANÆSTHETICS.—At a meeting of the Société de Biologie of Paris, on April 14th, M. Oscar Liebreich read a communication on substances which cause local anæsthesia. Having been led to experiment on a large number of substances, either natural or produced by synthesis, he found that there were a great many more capable of causing local anæsthesia than had been supposed. Some of these substances have an effect on animals but not on man, for many of them act, not by entering the general circulation, but by their direct effect upon the tissues with which they come into contact. With regard to the cornea, it must be remembered that there are two kinds of anæsthesia. M. Liebreich operated by subcutaneous injection of the dorsal region in rabbits

and guinea-pigs. For the eye he merely allowed a few drops of the substance in solution to fall on the cornea. Among the substances producing local anæsthesia the principal are hydrochlorate of ammonia and the bromide and sulphate of ammonia; the carbonate and nitrate are without effect. Hydrobromide of sodium acts, whereas the hydrobromide of potassium is without effect. Sulphate of copper is inactive, but iron salts, particularly the sesquioxide, have an anæsthetic action without producing coagulation at the point of introduction. Acetate of lead is anæsthetic, zinc salts are not. Among organic substances, hydroquinone, resorcin, antipyrin, substances belonging to the digitalis group, and serpent venom, in small doses are active. Thallin, alcohol, ether, and glycerine have no action. Essential oils, such as oil of turpentine, hydrate of terebene, eucalyptol, oil of camomile flowers, and a number of others, have a remarkable effect. According to Dr. Liebreich, these substance act by destroying the nerve-ends and by irritating the neighboring parts, causing what has been called "painful anæsthesia." Some substances, such as cocaine, do not cause painful anæsthesia and are followed by contraction of the vessels, whereas, substances that cause painful anæsthesia lead, on the contrary, to vascular dilatation. Substances causing painful anæsthesia have a caustic action, particularly hydroquinone. This anæsthetic and caustic action is also observed in distilled water. In general a very great number of substances produce local anæsthesia, but in their application to man it is necessary to examine first whether they act as caustics, producing painful anæsthesia.—*Brit. Med. Jour.*

Societies.

"Wherewith one may edify another."

MEETINGS.

Kansas State Dental Association meets April 30, 1889, at Topeka.

Iowa State Dental Society meets first Tuesday in May, 1889, at Des Moines.

Michigan State Dental Association meets first Tuesday in May, 1889, at Grand Rapids.

Illinois State Dental Society meets second Tuesday in May, 1889, at Quincy.

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

THE forty-fifth annual meeting of the Mississippi Valley Association of Dental Surgeons will be held in Lincoln Club Hall (cor. 8th and Race sts.), on the first Wednesday in March, 1889, (March 6th,) at 10 A. M. Members of the profession are cordially invited to be present as matters of interest will be presented.

Ex. Com. { E. G. BETTY,
 { W. M. CONRAD,
 { O. N. HEISE.

Books and Pamphlets.

THERAPEUTICS: ITS PRINCIPLES AND PRACTICE. By H. C. WOOD, M.D., LL.D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System in the University of Pennsylvania. Seventh edition, rearranged, rewritten and enlarged. 908 large octavo pages. Philadelphia: J. B. Lippincott Company. Cloth, \$6.00.

That the seventh edition of this work has already been issued, so soon after the appearance of the sixth, is conclusive of the estimate in which it is held. The work is so familiar to the members of the profession that it is hardly necessary to reiterate the entire contents, but merely to show how it differs from the preceding volumes.

The author says: "Comparatively few persons have a full conception of the rapid progress of therapeutics and of the amount of labor involved in keeping up with this forward movement. Scarcely three years have elapsed since the appearance of the sixth edition, yet the preparation of the present volume has necessitated a careful study by its author of nearly six hundred memoirs. There has been during the last decade a special growth in the appreciation by the medical profession of the value of remedial measures other than the administration of drugs.

In preceding editions of this book the demand for this sort of knowledge was in part met by a discussion of the application of the various forces of nature to the relief of human ailments.

In the present volume this formerly second portion of the book has been made the first, and its scope has been much extended, so as to take into consideration, besides various miscellaneous remedial measures, massage, metallo-therapy, the feeding of the sick, and the dietetic and general treatment of underlying bodily constitutional states or diatheses, such as exhaustion, obesity, and lithiasis."

A new classification of drugs has been adopted. First, they are classed in two great Divisions, "Systemic" and "Extraneous remedies." The "Systemic remedies" are broken up into two Classes: "General" and "Local" remedies. "General remedies" are divided into three Orders: "Nervines," "Cardiants" and "Nutrients"; and these orders are divided into "Families"; as "Antispasmodics," "Anæsthetics," "Somnifacients," "Delirifacients," "Excito-motors" and "Depresso-motors" under Nervines; "Cardiac stimulants" and "Cardiac depressants" under Cardiants; "Astringents," "Tonics," "Alterants," "Antiperiodics," "Antipyretics" under Nutrients.

"Local remedies" are not grouped in orders, but in families only: "Stomachics," "Emetics," "Cathartics," "Diuretics," "Diaphoretics," "Expectorants," "Emmenagogues," "Oxytocics," "Sialagogues," "Errhines," "Epispastics," "Rube-facients," "Escharotics," "Demulcents," "Emollients," "Diluents," "Protectives."

Division II, "Extraneous remedies," consists of the following families: "Antacids," "Anthelmintics," "Digestants," "Absorbents," "Disinfectants."

All the new drugs have been carefully considered, while many articles upon older drugs have been completely rewritten.

Notwithstanding constant effort at condensation, nearly two hundred pages of new matter have been added to the book. In most instances the special consideration of each agent studied, and the directions for its therapeutic use, are full and explicit and guided by thorough knowledge of physiology in health and in disease.

The tables and plates in the appendix are useful for reference. Good indices, a general index, and an index of diseases, complete the volume.

Dr. Wood has not only maintained, but, if possible, increased his reputation by the present edition of a work which reflects the utmost credit not alone upon the writer, but upon the whole profession. It can safely be accepted as an exponent of the enlightened therapeutics of the present day, and those of our readers who desire a thorough knowledge of this important branch of medical science should procure a copy of this work.

The mechanical work of the book is excellent. It is printed on good paper with clear type, and is in every way worthy of the publishing house of J. B. Lippincott Company.

DISEASES OF THE HEART AND LUNGS. By JAMES R. LEAMING, M.D., Emeritus Professor of Diseases of the Chest and Physical Diagnosis in the New York Polyclinic; and President of the Faculty, Special Consulting Physician in Chest Diseases, St. Luke's Hospital, New York, etc. Pages 300. New York: Published by E. B. Treat, 771 Broadway. Price \$2.75.

This is the fifth volume of the "Medical Classics," a series of standard medical works by American authors, including recent foreign works with notes and additions by American editors.

This second edition of Dr. Leaming's work has been carefully and thoroughly revised and enlarged. The author of this treatise has made the diseases of the heart and lungs his special study for many years. His careful investigations as a Practitioner and Professor in New York, his observations in Public Hospitals and private consultations were occasionally embodied in

papers, read before the Academy of Medicine or published in Medical Journals. These having been discussed, the views presented being sometimes modified, strengthened or confirmed, were afterwards tested and in their revision, are given to the profession in this permanent form.

Dr. Leaming's well-known acute faculty of discriminating sounds and his attention to the minutest details in the diagnosis of a case gives great weight to his judgment. The use and effects of certain medicines in the treatment of special cases have also been watched with singular attention and the effects are recorded with great particularity and with very helpful observations. Nothing in fact has been omitted in the consideration of the class of diseases pertaining to the heart and lungs, that the most advanced investigations have ascertained or the most skillful practitioners have found remedial or beneficial. It is a valuable contribution to the fuller knowledge and treatment of diseased or abnormal conditions of the cardiac and respiratory system, and we commend it to all who are interested in this great subject; and at the present day who is not? It is handsomely printed and uniform in binding with the preceding volumes of the series.

DISINFECTION AND DISINFECTANTS. Published by the American Public Health Association.

Several distinguished American physicians were appointed by this association for the purpose of experimental work in determining the value of disinfectants in reference to their application in the prevention and treatment of disease, and this work embodies the results of their labors. A large amount of the original work is devoted to the various micro-organisms, and determining the real value of many of the so-called germicides and disinfectants. These original experimental investigations are of great importance and value, and render this the most complete and practical volume, upon this subject, yet published.

The biological work was conducted mostly at the John Hopkins University under the supervision of Dr. Sternberg, and at the University of Michigan under Dr. V. C. Vaughan. The chapter on "Ptomaines," by Dr. Vaughan being of special value. Besides these the admirable quarantine system at New Orleans, and various apparatus used for disinfecting purposes, are fully described and illustrated.

The book is printed upon excellent paper, handsomely bound in cloth, containing 265 pages and 68 illustrations. The price has been put at the low figure of \$2.00 per volume. Sent post-paid on receipt of price by the secretary, Irving A. Watson, A.M., M.D., Concord, N. H.

MANIFOLD KNOWLEDGE.—John Calvin, the first title in Vol. VII. of Alden's *Manifold Cyclopaedia*, occupies seven pages, and Cevennes, the last title, the name of the chief mountain range in the South of France, is given nearly one page. Between these there are over 600 pages, including considerably over 100 illustrations, devoted to topics in every department of human knowledge. The editorial work is in skillful hands, the mechanical work, paper, printing and binding, all that one can reasonably wish, the form convenient beyond all precedent in works of reference, and the cost so trivial as

to astonish every one. It is said to be better than any other Cyclopaedia or Dictionary adapted to popular use. The publisher sends specimen pages free to any applicant or specimen volumes, which may be returned, bound in cloth for 50 cents; or half Morocco 65 cents; postage 10 cents. JOHN B. ALDEN, Publisher, 393 Pearl St., New York; or 218 Clark St., Chicago.

ANNOUNCEMENT.—E. B. Treat, Publisher, 771 Broadway, New York, will publish early in 1889, the Seventh Annual Issue of the English "Medical Annual," a *resumé* in dictionary form, of New Remedies and New Treatment that have come to the knowledge of the Medical Profession throughout the world during 1888. The editorial staff of the forthcoming volume, will include articles or departments edited by Sir Morrell Mackenzie, M.D., (Laryngology), London, Jonathan Hutchinson, Jr., M.D., (Genito-Urinary Diseases), London, J. W. Taylor, M.D., (Gynæcology), Birmingham, William Lang, M.D., (Ophthalmologist), of London, James R. Leaming, M.D., (Heart and Lung), New York, Charles L. Dana, M.D., (Neurologist), New York, H. D. Chapin, M.D., (Pediatrics), of New York, and others, comprising a list of twenty-three collaborators, widely known in Europe and America. In its enlarged and widened sphere it will take the name of "The International Medical Annual," and will be published in one octavo volume of about 600 pages at \$2.75, under copyright protection, and issued simultaneously in London and New York.

THE SANITARY VOLUNTEER. Vol. 1, No. 1. A monthly journal in the interest of healthful homes and communities. The first issue presents a creditable appearance and is filled with useful articles pertaining to sanitary science. It is the official organ of the New Hampshire State Board of Health, and a journal of practical value to all classes. Edited by Irving A. Watson, A.M., M.D., Concord, N. H. Price only 50 cents per year.

The "Don't Forget it Calendar," 1889, for professional and business men. A daily tablet for memoranda of passing events, a monitor for engagements, and ready reference to the past—also items for future use; [by turning over and preserving each monthly page]. Any member of the profession can secure a copy by forwarding six cents to cover cost of mailing. Address E. B. Treat, Publisher, 771 Broadway, New York.

BOOKS RECEIVED.

A MANUAL OF MEDICAL JURISPRUDENCE. By ALLEN McLANE HAMILTON, M.D. New York: E. B. Treat, Publisher.

DISEASES OF THE HEART. By ALONZO CLARK, M.D., LL.D. New York: E. B. Treat, 771 Broadway, Publisher.

HAND-BOOK OF PHARMACY AND THERAPEUTICS. Eli Lilly & Co., Indianapolis, Ind.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Our Aftermath.

"Methylbenzoinethoxyethyltetrahydropyridinecasboxylate" is the chemical terminology for cocaine, and is the longest known composite word in our or any other language, thank goodness.

THE POWER OF SONG.—"I don't understand this at all. Ever since our Lina has been taking singing lessons the door-bell is always ringing, and people coming to ask if a dentist lives here."—*Fliegende Blätter*.

MEDICINE AND MONEY.—Withal be good to the poor. You have them always with you. It is often cruel to accept pay from them. Be systematic in business, so that you will be able to give when and where it is required.—*St. Louis Med. Journal*.

A GOOD DOCTOR.—Good, earnest doctors are too busy to find time to slander their brethren or their rivals. It is all the same with lawyers, ministers and teachers. The truly good and truly great do not detract from the reputation of others; they are generous and magnanimous even to rivals.—*Ex*. And dentists?

TO AVOID INFECTION.—A physician recommends the placing in the mouth of a fragment of myrrh if one finds himself in an infected atmosphere; he has employed this means with happy results in several epidemics. He considers myrrh as a specific against infection. Physicians in the East use this means constantly in visiting patients.

THAT NINE THOUSAND.—It is estimated that in the last decade about nine thousand improperly educated doctors have been graduated from the medical schools. This makes nearly one thousand poorly educated and inadequately prepared physicians who are turned upon the public every year! We have already given the facts upon which the above estimates are based, viz., the examinations of the Virginia Board. Dr. Wood writes, in the *Therapeutic Gazette*: "From 1877 to 1887, inclusive, thirty-six thousand and ninety-seven graduates from medical colleges have entered practice in the United States. If these had all been efficiently examined according to the results just given, eight thousand three hundred would have been rejected, or about one-fourth the number. Our own opinion is that this proportion of rejections is less than it ought to be. We have gone over the class-books of the Medical Department of the University of Pennsylvania, and find that one-third of those who entered that institution failed to get their degree. Practically all of these people graduate at one college or another, and our own belief is that at least twenty per cent. more go through the University examination than ought to. Can any one estimate the amount of damage that nearly nine thousand improperly educated doctors can do in ten years? [Ditto dentists.]

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

THE CAREFUL FINISHING OF AMALGAM FILLINGS.

BY DR. GEO. F. CHENEY, D.D.S., ST. JOHNSBURY, VT.

IN the January number of the *Archives of Dentistry*, Dr. Harrison of Cadiz, Ohio, reports a case of a molar tooth extracted by him, that had been filled on its posterior surface with amalgam, where the amalgam had been forced up over the cervical wall, between it and the wisdom tooth.

This filling became such an irritant to the surrounding tissues that absorption advanced rapidly, and when operated upon by him the wisdom tooth was destroyed, all the process gone, and a portion of the palate bone considerably absorbed, as well as much injury done to the adjacent first molar.

This case, of course, was mere carelessness, and calls to mind a similar case in my own practice, although not so extensive.

A lady came in asking for an examination of a tooth that was troubling her. Examination revealed pus oozing out from between an upper first and second molar, and by probing it was found that a mass of amalgam had been crowded between the teeth which was very difficult to remove, and upon removal

proved to be nearly as large as the half of a silver three cent piece. I cannot account for room for so much to be crowded up there unless a pocket had been previously formed by food, the teeth being quite close.

It is time that some of these cases should be brought up to warn us against such unpardonable carelessness. In nearly every mouth we examine, with any number of amalgam fillings, we see evidences of carelessness in finishing, the gum instead of being healthy is of a bluish color and bleeds upon the slightest touch, and upon examination we very often find the filling overlapping the cervical edge a thirty-second of an inch and sometimes more. The filling itself, in such cases, is enough of an irritant to keep the gum constantly inflamed, it also leaves a shoulder upon which filth is accumulated.

Too much care cannot be given the finishing of amalgam fillings. I have for the past year or so adjusted the rubber-dam for most approximal fillings of amalgam, and I find enough better results can be obtained to justify the extra labor.

In most cases the dam can be adjusted without ligatures by cutting small holes and soaping the rubber on the under side and putting over four or five teeth, this makes the adjustment of the dam comparatively easy.

I work the amalgam into the cavity with bibulous paper following Dr. Bonwill's instructions, then finish with burnishers as much as possible, and with a piece of floss silk go up between the teeth, forcing the surplus amalgam up against the dam. Clear this surplus out as much as possible, and taking off the dam will remove the remainder.

I then dismiss the patient asking him to come in for another sitting.

I finish such fillings with sand-paper disks and strips.

When I cannot make this second engagement I find by the use of the floss silk between the teeth, these fillings can be very nicely finished without leaving an over-lapping mass at the cervical edge or between the teeth.

I have also found a nicely adjusted matrix of very great service and almost indispensable in some cases.

I am convinced that many of the so-called cases of pytalism are caused by carelessness of the operator and not by the amalgam.

Furthermore, I am satisfied that a carefully inserted and nicely finished amalgam filling, will preserve teeth as well, and cause as little inflammation of the surrounding tissues, as any other.

ADAPTING ARTIFICIAL DENTURES.

BY C. C. E.

I HAVE read the article, by Dr. Comstock, in the January JOURNAL, with a great deal of interest. It is well written and illustrated, the manikin is quite ingenious and shows the Doctor to be quite expert with his pencil; but I think his system entirely too elaborate to be at all practical, and I may say it is impossible to the great majority of dentists. It is a very desirable accomplishment to be able to draw and paint with skill, but it is not at all necessary to be an artist in order to be a competent dentist, and there are other things at which a student can much better employ his time than in trying to master it. It takes years of practice and a good deal of natural ability to be able to accomplish that most difficult of all branches of art, portrait painting. To reproduce upon canvass the features of a person, with any degree of accuracy, is so far beyond the ability of the majority of dentists, as to be unattainable, besides it is entirely unnecessary; there are other means far simpler from which just as fine results may be attained.

The following plan I have found to be the simplest and most accurate in cases shown in manikin. In taking the bite while the jaws are closed on the wax trial plates, with a sharp instrument draw a line in the wax from one corner of the mouth to the other, just where you want the ends of the teeth to come. After the casts are in the articulator and before separating, take a pair of compasses, and with one point follow the line, previously drawn in the wax, its entire length, while with the other point scratch a line in the cast just above the margin of the gum. Lock the compasses firmly. Now when the wax is removed all that is necessary is to apply a point of your compasses to this line and the other point will indicate the exact length you want your teeth at any given point, and the length of the line will indicate the width of the mouth. Now with these positive points to go by,

and the image of the features that the dentist has in his mind (which I am free to say will be far more accurate and reliable than he could produce on canvass, for the features should be thoroughly studied, and the teeth set up only by the one who takes the impression), I think results will be achieved that will be just as satisfactory as though we followed the very pretty little conceit of the Doctor's at the end of his article, which represents the dentist sketching the patient's features and working from the sketch in the laboratory. The manikin is quite ingenious, but the *misfits* displayed are so glaring as hardly to be made by a novice, while the cases represented are the comparatively easy ones we meet in practice. Given a small upper cast with a wide and protruding lower cast and we have a case that will test our skill and ingenuity to the utmost, to make a set of teeth that will answer the purposes of mastication and at the same time look well, and I am afraid portrait painting will aid us very little in bringing about the desired result.

AMALGAM.

BY GEORGE H. WILSON, D.D.S., PAINESVILLE, O.

HAVING decided that we shall fill the teeth with amalgam, the question is, how?

While it is not absolutely necessary to use the rubber-dam, it is with this material as with gold, one of the greatest aids. There are many operations that require so short a time, are so simple, and easy of access, that one would not be justified in subjecting the patient to the inconvenience of the rubber; but the more difficult the case, the more essential is the use of the dam. The nearer dry we can have the filling, the greater assurance we have of being successful in preserving the tooth, notwithstanding submarine fillings can be made.

Preparation of the cavity.—The enamel walls require close attention. Keep the edges cut at right-angles, so as to avoid thin edges of either enamel or filling. In the outline of the cavity avoid angles, forming curved lines. In approximo-coronal cavities avoid enamel walls unsupported by dentine. Another very essential feature in approximal cavities is the point at which

the tooth or filling will knuckle, when the teeth shall impinge upon each other. We should so shape the cavity that this impinging shall not be at the edge of filling, or so near that point that capillary attraction will keep it continually bathed in the secretions of the mouth, for it would only invite decay to attack the tooth again. Be as thorough and conscientious in preparing the cavity for amalgam as for gold. It does not follow that we should shape the cavity for one, as for the other; each material should have its cavity shaped to be best adapted to itself.

The cavities should have a general retaining shape without sharp angles. Retaining pits should be used with much care. In approximal cavities when the sulcus is defective, it is in our opinion the best practice to unite the two.

In deep seated cavities we will probably have the pulp to contend with. The treatment of which is outside of our subject, but we will stop a moment to make a few remarks upon capping. As to method, we have much faith in first coating the part to be protected from the metal, with a varnish of dammar and sandarac, equal parts dissolved in ether. Then follow, if there is an exposure, with a small amount of oxide of zinc moistened with wood creosote, or oil of cloves, pressed into place with a suitable sized pledget of absorbent cotton, with its surface covered with dry oxide of zinc. Cover this with a thin paste of oxyphosphate of zinc, put in place by the same means. The cotton filled with dry oxide of zinc will prevent sticking to the packing instrument and displacing the cement.

We very much doubt the utility of pink gutta-percha for the purpose of capping, although the practice is being revived in some sections of the country.

All dental amalgams may be considered under two classes, silver and copper. The silver class would include all in which silver is an important ingredient; and the copper class, the pure copper and mercury alloys.

In preparing the silver alloys it is always well to avoid an excess of mercury. Should we get in too much of the solvent it is better to continue adding the filings until the excess is absorbed, so as to avoid resorting to the chamois skin to get the proper working consistency.

The excess must necessarily take some of the ingredients, and will take the most of that for which it has the greatest affin-

ity; hence we change the formula of the alloy and produce a new one, of which we know little. Dr. Bonwill says, in an article appearing in the *Cosmos* last winter, that we should select some good alloy and use that only, as different alloys in the same mouth are liable to produce galvanic action. The truth is, that there is probably no greater difference in the formulas of the good silver alloys upon the market, then the general operator will produce from any one alloy, by the improper use of the solvent.

To intelligently watch the results of our labors we must observe several things, and one is, the desirable feature of freedom from the spheroidal tendency. And to comprehend our success or failure in producing the best results we must know that we have not produced a new compound at each operation.

Copper amalgam is too new a substance for us to pass a positive judgment upon its merits and demerits. Those who have used it much longer than we, claim great things for it, and from our few months' experience, we believe it makes a great advance in plastic fillings, but there is much to be desired yet.

Objections.—The color is necessarily black. As it is very hard it will be difficult to remove should it become necessary. It follows the rule of hard substances and is brittle. This quality needs to be taken into account in guarding against the mechanical forces. Especially is it brittle while crystallizing, so a proper occlusion must be had or the filling will be destroyed before it has crystallized.

Advantages.—No spheroidal tendency is claimed for it, and this claim seems to hold good for a short time, but how it will stand the test of a longer time, we must wait and see. Its hardness gives a good wearing surface. Above all is the preservative qualities expected of it. The most desired by beneficial therapeutical effects are ascribed to copper of any metal entering into amalgams.

In regard to its tonic action upon the pulp Prof. Garretson is credited in the *American System of Dentistry* as saying, that owing to its tonic action, the deposit of secondary dentine is sometimes so great that the pulp canal is reduced to a thread like tube. We see in this property a vision of a means of restoring many diseased pulps to usefulness that are now condemned to extirpation. Copper amalgam is prepared for the cavity by heat-

ing in an iron spoon, or a discarded mouth mirror with the glass removed, over an alcohol or gas flame, till globules of mercury appear upon its surface, when it is put into a mortar, crushed and triturated until it is thoroughly plastic, when the excess of mercury should be removed by the chamois skin. The dryer the mass the more rapid setting. If it should prove too dry to work well, add a little mercury and knead in the palm of the hand. Warming the instruments will facilitate its plasticity. The material may be worked over as many times as necessary. It is my experience that the second working will set quicker than the first, so where I desire it to set quickly I generally take the fragments that have been left at other operations. In the continued working should it become powdery add mercury. The packing of either the silver or copper into the cavity should be thoroughly done, working and getting the surface as free from excess of mercury as possible. Thorough packing will free the excess of mercury to the surface which should be wiped off. It is always well to have a portion of the mass made very dry by hard squeezing with plyers, to finish the surface. Bonwill's method of packing, with smooth surface instruments under bibulous paper, is beneficial.

Some are interested at present in combining oxyphosphate of zinc and amalgam by working some of the filings into the oxyphosphate while mixing, then finish the filling on the surface with the regularly prepared amalgam, claiming that the filings on the surface of the filing-phosphate-cement mass will absorb mercury from the amalgam and becoming attached, will form so many clinchers to retain the filling in places, as the cement will adhere to the tooth substance. Especially useful in shallow cavities with slight anchorages, also claimed to control the spheroidal tendency. We prefer this method.

Prepare the amalgam either silver or copper, as the case requires, then prepare a sticky oxyphosphate cement as hard as can be worked sticky; fill the portion of the tooth desired, and at once before it sets work into the surface a portion of the amalgam. Best to begin at the border of the cavity and work toward the centre. In case a portion of the cement has been forced out between the amalgam and edge of the cavity, that portion must be removed and filled in with amalgam. No particle of cement to be left at the surface of the filling. We have in this combination the adhesive properties of the cement to retain the filling,

the preservative qualities of the cement upon the tooth, and the protective qualities of the amalgam upon the cement.

Finishing the filling is a very important part of the operation. It requires time and often a delicate touch. The german-silver finishing strips, unwaxed floss silk, narrow strips of rubber-dam, narrow thin edged pieces of pine wood, thin spatulas, burnishers, and pledgets of cotton are valuable aids to a good finish. The filling should be worked into proper shape, approaching a contour as near as practicable, with all over-hanging edges removed. The last work should always be from the centre to the periphery. To have the best results the filling should have a final finish after the crystallizing process is complete.

Is it not a wonder that amalgam has any standing in the profession with all of the abuse it has been subjected to; cavity half, or less, prepared, material improperly formed, poorly inserted, and no finish worthy the name?

Matrices can be used to great advantage at times, but these do not require to be so rigid as for gold, they are much better not. Excellent ones can be formed from taggers' tin, german-silver finishing strips and the thin ribbon saws. In large cases it is often wise to make a loop matrix either with soft solder, or by tying it about the tooth, and leave it in place until the filling is thoroughly hard, when it can be removed and the filling finished. Matrices formed of these pliable materials are best retained in place by tying and pledgets of cotton saturated with a solution of some gum as sandarac and dammar.

PRACTICAL HINTS.

BY DR. H. F. BARNES, TIFFIN, O.

MANY inquiries are made as to the best method of making a smooth model. My plan is to varnish the impression (plaster is the only kind I make) with thin shellac varnish, and when dry apply one or two coats of sandarac varnish and pour without oiling. My models are always smooth, and if they are carefully removed from the impression never have any breaks or scales.

I never use chambers or vacuum plates, and do not observe but that I have as good fits as my neighbors.

In packing my flasks before closing for final heating, I cover my model with either tin foil, or the foil that is wrapped around tobacco, and then soap it. When my plates are vulcanized, I open, and by taking a hoe-shaped excavator, remove the tin foil without trouble.

To prevent bad *joints*—After being careful to remove all of the wax by pouring hot water into the flask, I fill the joints with plaster mixed with collodion, colored with analine red, and then cover the filling with the foil. Where care is taken to grind good joints, by this procedure I am able to make very perfect joints.

A great deal is being said and written about gold and tin fillings in combination. I have for a number of years used Robinson's felt foil, or textile filling with the very best of success. I naturally found the gold and tin very much to my liking, and I cannot see why every dentist does not use this combination in almost every case. In all large fillings to avoid using amalgam, and where gold alone would be too expensive, I fill the bottom of the cavity with a good cement. After it is hard shape my cavity so as to retain the gold and tin, fill the cervical walls thoroughly and nearly all of the tooth, thoroughly condense, and where I want to finish with gold use a fine spear-shaped drill, and make pits in the gold and tin filling and fill and finish with cohesive gold. Between the teeth and well up to the gum I leave the gold and tin; and do not disturb it as I find I have a very much better filling if it is allowed to remain, but where a grinding surface is needed, gold alone is harder and wears better.

Amalgams.—Oh, for the good old days. I have an amalgam filling made from a silver quarter and an old fashioned copper cent, amalgamated, covering the grinding surface of a first right superior molar, that has the walls as compact and the edges as perfect as the day it was inserted, 25 years ago. Also, a filling made of Townsend's amalgam, about 20 years old that is perfect, while in other portions of the mouth I have the wrecks of alloys good, bad, and indifferent, that leads me many times to cry out if there is a perfect alloy made, and would we not all be better off if we confined our use of amalgams to plain precipitated silver and copper. It might not be so bright and colorless, but would stay and preserve the teeth, without shrinking or expanding, and very rarely discolor them.

RETROSPECTIVE.*

BY DR. J. W. WHITE, KNIGHTSTOWN, IND.

IN this age of railroads, telegraphs and telephones, we are not apt to look backward. The past contains little, as a rule, to recommend it to the average American mind. Forward, is the word; yea, the inspiration, in our times.

Notwithstanding our push and hurry to get to the front, we should remember that the past has its years of experience, and, in our profession, this counts. It is an old school, and in it we have had many theories, but only the fittest have survived the test of usage, and while we claim an advanced position in the professional and scientific world, there are many things which have come to us with the dust of ages upon them.

Antiquity reveals some of the arts and sciencies of the Egyptians, and in the tombs of that ancient people we see the work of the dentist, in teeth filled with gold, and it is indeed gratifying to know that ours is not one of the lost arts.

The Romans, we are informed, took great care of their teeth, and, when they lost them, procured artificial ones of ivory, and, if they became loose, bound them to the firm ones with threads and bands of gold.

It is said that not long since a complete set of dental instruments had been exumed from the city of Pompeii; not, I imagine, of a very late pattern. These facts seem sufficient to establish the antiquity of our profession, if not in the advanced position in which it is to-day, at least one recognized by that people as worthy to be mentioned by the historians of that age.

The custom of filling teeth, so far as history records, originated in the first century. Celsus, who lived then, is said to have been the first who recommended, and perhaps performed, the operation.

Diseases of the teeth had attracted attention many centuries prior to this, as may be shown by the writings of Heroditus, the Grecian historian. Somewhat familiar with the arts and sciences of the Egyptians, and their practice of the healing art,

* Paper read at the Indiana State Dental Society.

he says: "There were specialists in that day—those who treated diseases of the head, others of the eye, and those who made the teeth and their diseases a specialty."

Hippocrates was the first to describe the functions of the teeth, the ages at which they are erupted, and some of the diseases to which they are liable. From the sixth to the seventh century, dentistry fell into the hands of the ignorant and menials, and was practiced in the rudest and most barbarous manner.

The transplanting of teeth was practiced in the fourteenth, or beginning of the fifteenth century, but was soon abandoned as too barbarous for that age. It was, however, revived again toward the latter part of the eighteenth century, by John Hunter, an English Anatomist and Physiologist, of some note. Says Chapin A. Harris, "Of all the species of dental quackery, this is certainly the most deprecated. Fortunately, for humanity and the credit of this enlightened age, the practice has been discontinued, and is to be hoped will never be revived again." By the way, how much better is our modern implantation of this nineteenth century?

It was not until the eighteenth century that dentistry was recognized as a science—when France enacted a Dental Law, requiring all practitioners, and those who proposed entering the ranks, to undergo an examination before men appointed for the purpose, and only such as were found qualified should be allowed to practice. Verily, history repeats itself in our time.

The literature of the profession dates back to a short time before the Christian era. Hippocrates, the father of medicine, in treating of teeth, says: "They are a glutinous increment from the bones of the jaws and head."

Aristotle asserted that "man had more teeth than women, that the difference existed between the sexes of various other animals, and continues to grow during life."

Areteaus, treating of toothache, was unable to account for its cause, and was content with saying, "it is known only to God."

Celsus, to whom we have heretofore referred, describes at length, methods for extracting teeth, and the purpose he had in view for filling teeth was not for their preservation, but to prevent their breaking in extracting. He also recommends a variety of remedies for aching teeth, among which he mentions the

actual cautery, hot oil, and caustic medicines, with the view of destroying vitality.

With all our progression, we have not gone far beyond this ancient writer.

Galen, doubtless having access to the great Alexandrian Library, wrote in the second century and left some very minute descriptions of the forms and functions of the teeth.

Dentistry seems not to have made any progress for many centuries. When vandalism and the barbarous hordes of the East, over-run the lands of culture, civilization and the arts, and learning was hidden in the gloom of the dark ages, then the light of science but feebly burned amid the ignorance and superstition, and all the stars in the moral and scientific world that were wont to shine, were eclipsed in the chill night of the age, which had spread its dark pall over the world. During this stage of suspended animation in the intellectual world, dentistry fared no worse than any other science. Demonology took the place of the curative art, and by the aid of charms and incantations, sought to eradicate pain and disease.

From this time to the sixteenth century very little is to be found in the records of medicine concerning the dental art, but with the revival of letters, some 300 years ago, we find Ambrose Pare in his celebrated work on "Surgery," began to write upon this important theme, giving evidence of the vitality of dentistry amid the chaos of ancient science and erudition. His remarks were only a promise of what the present age is fulfilling in this department, for it was then only the twilight, and there was much that was improbable and even absurd in his mind—as when he spoke of the extraction of teeth, he says: "For the bitter plucking out of the tooth, place the patient upon a low seat, bending back the head between the tooth-drawer's legs; the tooth-drawer should then deeply scarify about the tooth, separating the gums therefrom, and then, if spoiled, as it were of the wall of the gum, it grows loose, it must be shaken and thrust out with a three-pointed lever, but if it stick too fast and will not stir at all, then the tooth must be taken hold of with some of the toothed forceps, now one, then another, as the greatness, figure and sight shall seem to require. Unless the operator is skillful, he may remove three, and sometimes leave untouched the one which caused pain."

Let us contrast this with our scientific method: Place your patient in a \$200 operating chair, administer nitrous oxide gas, or chloroform, or apply, if you please, cocaine hypodermically to the gum, or, if you prefer, attach your forceps to the Dental Electric Vibrator, and while your patient is thus smothered with the gas, or his jaw benumbed with the cocaine, or lulled into forgetfulness by the music of the vibrator, gently as possible remove the offending tooth, then waken your patient and tell him the tooth is out. Now, as between science, main strength and awkwardness, which will you choose?

Let it be said for the impetuous and magnetic Frenchman, he has done more for the advancement of the dental profession in oral surgery and prosthetic dentistry than all of Europe combined. It was he who gave us mineral teeth, and while he did not bring them to a requisite state of perfection, he gave us the thought and material, and as a source of supply we are no longer indebted to the human subject, neither the elephant nor rhinoceros, but in our own factories we find such close imitations of nature that the world awards us the premiums. While we have long since passed from gold or linen thread and spiral springs to metal plates and atmospheric pressure as a means of retaining artificial teeth in the mouth, and have reached what I shall denominate the plastic age, when with wax and rubber we replace the lost organs of mastication. (I seriously question if in this we are the gainers. To my mind it is a clear loss to the wearer of teeth both of comfort and economy to take the cheap and inferior base as a substitute for the metal). True, with less labor and greater ease we are able to restore lost structure and expression of mouth and features, but do we not lose in skill and scientific mechanism as a profession by thus lowering the standard of excellence? In operative dentistry, I think, perhaps, we have achieved our greatest success, and since the introduction of the dental engine and rubber-dam very many operations of real merit are accomplished, which, without them, would be entirely lost to humanity. Coming into the nineteenth century with increased facilities for the dissemination of active thought through the agency of the press, we have, professionally advanced in scientific knowledge and research as no other profession in the world, and our list of contributors to the literature of our profession may now be known as legion. While the Law refers to

ancient Lycurgus and the more modern Blackstone and Chitty as authority, and Medicine to Hippocrates and Aristotle as its ancient worthies, we, in the dental profession, have no fathers who are infallible upon any subject. *Experience* has been our greatest tutor, and the injunction of Paul, "to prove all things and hold fast to the good," has been our motto, and dissatisfaction with much in the past has been a spur in the head of our profession to bring us to the front.

I rejoice that we no longer go to the barber and blood-letter to have our teeth treated, but to-day we are proud to stand the acknowledge equal in scientific attainments with the learned professions of the day, and that our services are being appreciated by the world, as at no time in all the past.

EYE STRAIN.*

BY J. R. BRIGGS, M.D., DALLAS, TEXAS.

ORAL specialists are not supposed to know any more about their *eyes* than I would presume to know about *my* teeth. I therefore call your attention to a habit that at least some of you have thought should be checked. I refer to your stooping posture, for hours at a time, while filling cavities. This procedure is dangerous in various ways; first, theoretically, and second, practically.

Theoretically, we are cognizant of the laws of gravitation, and know that the blood will fill the brain too full after long stooping and fatigue; and that excessive pressure in the blood-vessels of the brain is hazardous in the extreme, when coupled with long-continued labor and mental strain. Especially is this true in the aged, and more true still if the person have a short, thick neck and large head.

Practically, the above described conditions have proven themselves to be as true from actual clinical observation. This is true in other branches of the profession, but not in the sense it is in operative dentistry. To illustrate: But a short time since a physician in this city, while delivering a woman, after long stooping and the head hanging down, dropped to the floor with apoplexy, *never to rise again*.

* Read before the Texas Dental Association.

Some of you had learned to love Dr. Gill (recently from New Orleans to this place), and doubtless will remember the facts to be as stated. This and other like cases set me to thinking of the dangers attending the lowering of the head, and its concomitant exhaustion in *every* avocation of life.

During the last few years I have seen three cases of serious eye trouble—choroiditis—in dentists, which I believe had its exciting cause in too much lowering of the head, resulting in partial venous stasis of the cerebral circulation. From such a posture a intraocular pressure becomes increased, and such pressure, long continued, will inevitably induce enlargement of the delicate vessels of the choroid, ciliary body, and iris. The result is inflammatory action of the uveal tract, which in every instance, if not radically checked, leads to consequences serious in aspect.

This condition of affairs is often aggravated by the wearing of improper glasses—spectacles that, instead of overcoming refractive errors, actually produce them. How many know, or have an idea of, the strength of lenses required to overcome their far or near sightedness? How many have had their accommodation paralyzed and vision measured by a competent oculist? To go to a jewelry store and select glasses which are moulded by the ton, by the pauper laborers of Europe, is like the Chinaman who buys the largest boots he can find because he can get *more leather* for the same amount of money.

Dentists are not alone in this matter. Nevertheless, they are as careless about their glasses as the laity are of their teeth. From this you can base an estimate of your culpability in neglecting to care for your eyes as you would have others (and properly, too) care for their teeth.

If time afforded me, it would be fitting here to discuss some recent and startling researches on eye strain in the causation of functional nervous disease. An epitome will serve for the present to show the cause of the many headaches and other cerebral disturbances (such as syncopal attacks and dizziness), resulting from heretofore unknown causes, to be due to anomalies of the extrinsic eye muscles.

To illustrate: If the superior rectus be, from whatever cause, too short for its opposite rectus, the eyes or radial plans are unequal and eye strain is the result, causing, as it often does, various functional disturbances. To make it still plainer, we will

take a case of strabismus, where the external rectus is too short. In this instance the eyes turn in and the visual lines are crossed, and the patient sees double. This you all readily comprehend. But we take a mere shade of anomaly, one in which the refractive condition of the eyes is normal, and one in which there is no perceptible turning in the least either way. In many such cases, after long use of the eyes, a test with prisms will show that there is a shortening of one of the extrinsic eye muscles, which will account for violent headaches, coming on after excessive labor, and the concomitant eye strain.

There is no one thing that would be more liable to manifest itself from the stooping posture than this state of affairs. The difficulty in remedying this state of affairs is the indifference shown to experts in optics.

In referring to optics and opticians I have no reference to the ignorant spectacle vendre, who does not know the difference between astigmatism and hypermetropia, but whose unmitigated audacity forces him into the midst of the intellectual classes—that is, they are informed on other matters of life, but know actually nothing of the science of optics. Recently I have had quite a number of cases of iritis, choroiditis, and cyclitis, and in every instance the patient had been holding his head in a stooping position. I have never in my life seen iritis, choroiditis, or cyclitis in a printer. He holds his head erect—if anything his chin is slightly elevated. No danger of ocular engorgement in such persons; there is actually no chance for it.

Let me ask, can't dentists sit while doing most of their work, instead of standing and warping themselves in a semi-circle, as they frequently do? If they can do so, they will find that during a life-time of professional labor they will have gained enough to repay them for a radical change of habit.

While this subject is new—never having read a line of literature on it—I venture to say that investigation would show that dentists, more than any other class, have tired eyes and frequent headaches. There are, of course, exceptions. Dr. Storey informs me that *he* has ceased to stand and operate, and now sits while operating. This is proper; but whether he was induced to make this change from *scientific reasons*, or from his natural disposition to *sit*, I am wholly unable to now say. At any rate he is, as usual, right, and if others will follow his example, they will find

that their work will not tire them so, and their eyes will not feel hot, and their temples throb, after working hard all day at the chair.

These suggestions are made with a consciousness that I may be informed that I know nothing of the difficulties attending operations on the teeth. This is emphatically true, practically speaking; nevertheless, such does not change the inevitable results of eye strain from the pendulum-hanging attitudes of the head.

In my dark-room at work with the ophthalmoscope I find that the only seat which will meet emergencies is a piano stool. This might prove to be of value to you, being readily adjusted. As to the obstacles in the way of getting a clear view of the interior of the mouth, I regard them as almost insurmountable with the best auxiliary aids. Therefore the filling of a small cavity requires a nicety of ocular adjustment unnecessary for any other surgical work. 'Tis true that for ophthalmoscopic work great precision is essential, but in other departments of diagnostic and operative procedures ocular strain is hardly possible.

The normal eye sees best at a distance of sixteen inches, but how many dentists retain this distance? My observation goes to show that they usually approach the mouth within a distance of nine inches. This being true, the eyes are thrown out of focus, and the doctor is unconscious of it; but he will come finally to feel its effects.

It would be a rare thing to find a person with perfectly normal eyes at the age of thirty years, and I very much doubt if there is a doctor in this room who could stand the crucial test of a perfect eye.

PROCEEDINGS OF CHICAGO DENTAL SOCIETY.

[Reported for the OHIO JOURNAL OF DENTAL SCIENCE by "Mrs. M. W. J."]

THE papers read at the twenty-fifth anniversary meeting of the Chicago Dental Society Feb. 5th to 8th, were far above the average in interest and scientific value as well as practical availability.

The first paper on the programme was from DR. A. H. THOMPSON, Topeka, Kansas, on

GUM-COLORED PORCELAIN FILLINGS.

This was a clear and practical exposition of Dr. Thompson's original idea of concealing and repairing the ravages of caries in

the labial aspect of the necks of anterior teeth, when the gums have receded and where gold fillings are conspicuous and unsightly. For this purpose Dr. Thompson utilizes pieces of the gum-colored portion of blocks of porcelain teeth, selecting with the greatest care a piece which will harmonize with the natural gum both in color, shading and markings, if necessary dove-tailing together different pieces to secure an exact match. The cavity is properly prepared with undercuts and the porcelain ground to an accurate fit, being left flush to simulate the lost gum-tissue. The filling is set in oxyphosphate cement colored with vermilion tinged with blue, and when artistically done, as it is by Dr. Thompson, constitutes an imperceptible restoration to normal appearance.

In his clinic, Dr. Thompson inserted one of these fillings on the labial aspect of the neck and root of a left superior canine. The cavity was large, the pulp canal having been filled with gutta-percha two weeks previously. Two pieces of porcelain were selected, one harmonizing with the tooth in color, the other with the gum. The outer edges were beveled to fit undercuts made in the margin of the cavity, the pieces being fitted together in the median line, at an angle in the arch to make the curve over the tooth. The magnifying glass was used to secure a perfect fit. The filling was set in cement as described above, the inlays being polished off after the cement had hardened.

The second paper on the programme was by DR. CHAS. P. PRUYN, Chicago, entitled

A STUDY OF THE EFFECTS OF COCAINE UPON MAN AND SOME OF THE
LOWER ANIMALS.

Dr. Pruyne, as is well known, has acquired the title of *authority* on the use of cocaine, by virtue of an extended series of experiments upon the lower animals, even to death, by means of which he has studied every feature of its effects both beneficial and toxic; all the symptoms, both physiological and pathological, in their regular sequence; the effect of various antidotes, so-called, and actual. His case-book, from actual dental practice, also contains a similar record in the case of human subjects.

The paper read before the Chicago Society gave the history at great length of both classes. We give only the deductions drawn by Dr. Pruyne from his extended experience.

First, bear always in mind the possible risk of the formation of the COCAINE HABIT, more terrible in its unyielding grasp than alcohol, opium or hashish. The physician and the dentist are most urgently warned by Dr. Pruyn not to yield to the seductive temptations of self-injection.

The line between safety and danger is so faintly drawn that only those who have most thoroughly studied the symptoms can judge of the risks incurred; this experience can only be properly gained by experiments upon the lower animals.

To the inexperienced operator the danger line is passed without warning, and unless the antidotes are at hand and thoroughly understood, the risk is imminent. In general surgery, by means of bandages, tourniquets, etc., the circulation can be arrested and the drug restrained to local action for hours, and by gradual relaxation of pressure allowed to enter the circulation so gradually that the risk is much less than with the dental surgeon who operates upon tissues near the main nerves and arteries, where arrest of circulation is impossible, and with but short cuts to the peripheral extremities. For this reason also, the general surgeon can safely use larger quantities and stronger solutions than the dentist. They use from five to eight grains, while Dr. Pruyn considers one or one and a half grains a large quantity to use in a dental operation. The hypodermic syringe used must be kept absolutely clean, preferably by the use of bichloride of mercury; care must be taken to inject no air, for this reason a glass barrel should be used; the external surface should be painted with the solution used and a drop at a time should be expelled to anæsthetize the tissues ahead of the point of the needle. Great care should be taken not to allow even a drop to be swallowed, as nausea will be the result; three drops of the 4% solution on each side of the alveolus is sufficient for the removal of a tooth or sequestrum, soft, flabby gum tissue requiring more than dense, firm tissue.

The line between physiological and toxic symptoms is so very faintly drawn that it is difficult to define. Respiration increases in rapidity but diminishes in depth—faintness, palpitation, stifling, lack of air, tingling of extremities, cold sweats, muscular movements, sometimes amounting to convulsions, if not checked: the heart beats after circulation has ceased. The antidotes are the inhalation of the spirits of ammonia, lowering the head, the in-

jection of brandy or ammonia, the inhalation of nitrite of amyl, three or four drops on the handkerchief being enough. Morphine is an antidote if injected at least thirty minutes before the injection of cocaine. If combined in the solution for injection, no effects from the morphine will present.

In his experiments with dogs, Dr. Pruyn found that dogs which recovered entirely from the effects of a certain dose of cocaine, when morphine was used to antidote, died from a subsequent injection of the same amount of cocaine when morphine was not exhibited.

The counter-indications are debility, nervous prostration, hysteria, pregnancy, fear of the effects, any form whatever of affections of the heart, lungs, liver or kidneys. It is more uncertain than any drug we are acquainted with. *Be careful* every time, know your patient well, and have all known remedies and antidotes at hand.

DR. T. E. WEEKS, Minneapolis, read a paper entitled OBTUNDENTS OF SENSITIVE DENTINE, on the programme. Dr. Weeks announced his subject, however, as

SENSITIVENESS OF DENTINE AND ITS CONTROL.

After describing the structure of a tooth in its different portions, and the function of the pulp as a tooth builder and formative organ—an organ devoid of tactile sense and sensitive only to change of temperature or pressure. The latter communicated through dentinal fibrils is felt at their distal ends or nerve endings, and thence transmitted to the sensorium, constituting what we know as sensitive dentine.

In normal dentine the tubules contain water both as a constituent of the fibril and surrounding it. By the removal of this water, pressure is no longer possible and sensitiveness of dentine is thereby modified, if not entirely removed. Dehydration is therefore the logical method of obtunding or controlling sensitiveness of dentine.

Many cases can also be controlled by the application of the fundamental principles of the "mind cure," bearing in mind the wonderful power of the imagination. Gain the confidence of the patient; show that you know what to do and how to do it; to do this you must have a thorough knowledge of tooth structure, in both its organic and inorganic domains; you will not then be so

liable to pass the boundary line. Without this knowledge you are playing with fire.

The opening speech, in the discussion of this paper by Dr. L. E. CUSTER, Dayton, Ohio, was a most admirable presentment of the whole subject, covering it even more thoroughly than was done by the essayist.

Agreeing with the essayist as to the wonderful powers of the imagination, he entered more deeply into the metaphysical aspect of the question; a painful sensation is entirely a mental operation; an image formed subjectively; the cultivation of the powers of imagination renders this image more vivid. The prolonged fear of the thrust of an instrument into an exposed pulp is worse than the brief realization, though only in the mind and void of reality. The perceptive faculties are all called into play in enhancing the image. The sound of filing in the adjacent laboratory suggests the action of a similar instrument upon a sensitive tooth: the smell of creosote reveals a howling toothache making night hideous; the odor of chloroform suggests the lancing of a felon or the amputation of a finger; iodoform recalls the dressing of some painful wound. For this reason, if no other, all such suggestive sights, sounds and smells, should be avoided in the dental office. The power of personal magnetism should not be undervalued. The dentist should be gentle and sympathetic, showing at the same time perfect familiarity with his business.

In the choice of obtundents, Dr. Custer said it must be borne in mind that the desired result is obtained in one of three ways: through change of structure, through withdrawal of nutrition, or through reduction of temperature. The first is effected by means of the coagulants, as carbolic acid, chloride of zinc, etc. The effect produced is only superficial, because of the smallness of the canaliculi. The second is reached through the dehydration, water is both a constituent and a condition of the dentinal fibril. Its removal is accomplished either mechanically by the use of absolute alcohol, or by sharp blasts of hot air. By this reduction of temperature neuræthemia is induced. Anæsthesia of the dentinal fibril may be obtained by the use of ether spray. Better results are obtained by the combination of different methods than by any one alone. This is seen in the so-called Ottolengui method.

This paper was further discussed by Drs. Atkinson, Thompson, Harlan, A. E. Baldwin and J. Taft. Dr. Taft insisted upon

the importance of an individual study of each case, no two being alike in conditions, causes and surroundings. He placed a special value upon the *expectant method*—a temporary stopping of oxy-phosphate, gutta-percha or Hill's stopping, under which sensitiveness will frequently be dispelled without any other application.

DR. G. V. BLACK read an exhaustive paper on

ANTISEPTICS

based upon and giving the results of a series of experimental tests of the value of antiseptics as shown in the following table, which was distributed through the audience, and which he explained as follows:

The antiseptic value of a drug is best expressed by its range of effective work. The range of value is found in the difference between the saturated solution, or that concentration that may be found injurious to the tissues, and the greatest dilution that inhibits the development of micro organisms. Those essential oils that are not too irritating have an extension of range in their use in emulsion, or in substance. Also many drugs have, in greater dilution than that which actually inhibits, a range of restraint that is useful. Only positive inhibition is marked in the tables. The values of the essential oils are given for the oils in substance, for the solutions, and for the derivatives. All solutions are saturated in water unless the percentage is given. The figures given show a failure of inhibition within 24 hours, with addition of * shows a failure on the second day, ** on the third day, etc. In stronger solutions than those given below, we have inhibition of growth.

Aseptol, (Merk's 33.3 % sol.) 1-25. Benzoic acid, (sol.) 1-2, 1-3. Betanaphthol, (sol.) 1-4, 1-5. Boracic acid, (sol.) 1-8*, 1-10. Carbolic acid, 1-560, 1-900. 5 % sol., 1-20. Copper sulphate, (sol.) 1-200*, 1-400. Creosote, (Commercial) 1-500, 1-900. Morson's wood tar, 1-1200. Sol., 1-4, 1-8. Hydronaphthol, (sol.) 1-4, 1-5. Iodoform, growth in the saturated solution among the undissolved powder. Mercuric bichloride, 1-100000. 1-500 sol., 1-200. Resorcin, (6.5 % sol.) 1-8*, 1-10. Oil of bergamot, 1-400, 1-720. Sol., 1-1, 1-4, 1-5. Oil of cajeput, growth in the emulsion. Oil of cassia, 1-5000.* Sol., 1-10.* Oil of cinnamon, (Ceylon) 1-2700*, 1-4000. Sol., 1-4*, 1-5. Oil of cloves, 1-2000. Sol., 1-3*, 1-4. Eugenol, 1-1200. Sol., 1-4*, 1-5. Oil of copaiba, growth in

the emulsion. Oil of coriander, growth in the emulsion. Oil of cubebs, growth in the emulsion. Oil of eucalyptus, growth in the emulsion. Eucalypti extract, 1-240, 1-480. Sol., 1-1*, 1-5. Eucalyptol, 1-650. Sol., 1-1, 1-5. Oil of fennel, growth in the emulsion. Oil of mustard, 1-2000. Sol., 1-4*, 1-6, 1-10. Oil of pennyroyal, 1-960. Sol., 1-1, 1-5. Oil of peppermint, 1-600, 1-800. Sol., 1-1, 1-5. Menthol, (sol.) 1-1, 1-5. Oil of sassafras, 1-800. Sol., 1-1, 1-5. Oil of thyme, growth in the emulsion. Oil of turpentine, (Merk's rec.) 1-800. Sol., 1-2*, 1-5. Terebene, 1-480*, 1-1400. Sol., 1-1*, 1-2, 1-5. Terpinol, 1-960. Sol., 1-3, 1-5. Oil of valerian, growth in the emulsion. Oil of wintergreen, growth in the emulsion. Salicylic acid, (sol.) 1-3*, 1-5. Oil of wormseed, 1-720, 1-880. Sol., 1-1, 1-5.

Experimental tests in both containing 5% of egg albumen. In the following tests three solutions of the bichloride of mercury were used. A 1-500 solution of bichloride of mercury was made and divided into three equal parts. That marked (p) was left plain. That marked (a) received 5% of hydrochloric acid. That marked (s) received 10% of chloride of sodium.

Solution (p), 1-5000, 1-7500, 1-10000, 1-15000. Solution (s), 1-5000*, 1-7500*, 1-10000, 1-15000. Solution (a), 1-5000*, 1-7500*, 1-10000, 1-15000. Solution (p), 1-2000**, 1-3000**, 1-4000*. Solution (s), 1-2000***, 1-3000**, 1-4000*. Solution (a), produces inhibition, 1-4000. Carbolic acid, (5% sol.) 1-12, 1-15, 1-20. Oil of cassia, (sol.) 1-10*. Copper sulphate, (sol.) 1-200, 1-400.

Dr. Black said that while it was true that the essential oils were gaining favor, their use was largely superficial, owing to a lack of exact knowledge. Many of the antiseptics, so-called, in most frequent use, have no antiseptic value whatever. Others which have a very limited range are valuable as having no toxic effects, the greater the range, the greater also being the toxic effects through absorption.

Words are used in a very loose way; this is seen in our use of the terms antiseptic and disinfectant as interchangeable. An antiseptic inhibits the growth of microbes; a disinfectant destroys them when present. Powerful preparations of antiseptics which might do great harm in medicinal use, can be safely used in root canals and small abscesses. The great difficulty in the use of the essential oils lies in their uncertain quality, due to inaccurate methods of preparation. This must be done in the locality where

the plant thrives and often by persons of no scientific knowledge. The proper parts of the plant are also liable to be carelessly mixed with other parts having very different and perhaps injurious qualities, the bark, leaves, flowers and roots of most plants having very different properties. As the drug becomes more valuable it will be produced in greater purity, as its value will depend upon this. The results given in Dr. Black's tables were obtained by the following procedures: An incubating oven was kept at an even temperature of 99° Fah. Beef broth peptonized and sterilized, even in quality, was used in all the experiments as a culture medium. To avoid cultivation under artificial conditions this was infected in every case with his own saliva. The tubes used were graduated to get accurate measurement. Each tube was kept in the oven five days unless growths occurred earlier. All notes were written down at the moment of observation, nothing being trusted to memory. The "solutions" of essential oils are saturated aqueous solutions, mixed with water and violently shaken, and placed in the oven for twelve hours; shaken again and given another twelve hours in the oven; then filtered again and again till clear.

Emulsions are obtained by passing through a syringe a number of times.

Many combinations will be found more valuable than either of their constituents, as Dr. Black's favorite "1-2-3" consisting of carbolic acid 1 part, oil of cassia 2 parts, oil of wintergreen 3 parts, which has a wide range of antiseptic value, equalling carbolic alone without its objectionable features.

Antiseptics are used in four forms—in water, in oils, in powder, and in hypodermic injections.

The aqueous solutions are least available in dental surgery, as washings to be effectual must be continuous to get the effect of the drug. A solution in peroxide of hydrogen is superior to water as by the liberation of oxygen we get a thorough cleansing effect, the remedy being also carried into the most remote parts, as can be done by no other means. The oils are non-effective as it remains longer in contact with the parts, producing its effect for days together. Powders or the dry antiseptic dressings become available through their solution in the secretions of the wound surface. For this purpose choice must be made of such as are not poisonous in absorption. Boracic stands at the head of the

list, closely followed by hydronaphthol. The dry dressing is liable to cake and form an arch beneath which septic action goes on. For this reason the combination of the oils and dry applications are very beneficial. Hypodermic injections of antiseptics are seldom used except in gangrenous tissues or in stumps of tumors, etc.

This paper was discussed at some length by Drs. C. M. Bailey, Sudduth, A. H. Thompson, H. A. Smith, Harlan, J. H. Wooley, and Sitherwood.

(To be continued.)

Compilations.

"Gather up the Fragments."

SOME AFFECTIONS OF THE GUMS.

BY FRANK LANKESTER, L.R.C.P., M.R.C.S., L.D.S., ENG.

(Continued from page 88.)

Addison's Disease we will next briefly consider. It is a comparatively rare disease and is characterized by various nervous and dyspeptic symptoms, together with an ever-increasing debility and a most remarkable pigmentation or bronzing of the skin and mucous membranes. The skin, especially on exposed surfaces, assumes a deep brown mulatto tint, whilst on the tongue, gums and buccal mucous membrane there are found irregular patches of pigmentations of a dark brown or blackish color, and which are quite characteristic of the disease, and could not well escape the notice of any one examining the mouth. It occurs chiefly in males between ten and fifty years of age, and it always ends fatally, and commonly within a year. The treatment is purely palliative. I merely mention the disease here to-night as a rare abnormal condition of the gums, as a curiosity, so to speak.

I have mentioned four metallic poisons that exert an influence on the gums. We will take *Mercurial Poisoning* first. Mercury enters the system very readily, both by the stomach, skin and the lungs. It is taken very largely as a medicine, and is much used in various arts and manufactures, such as looking

glasses, etc. Hence we not infrequently meet with cases of mercurialism, *i. e.*, mercurial poisoning. One of the earliest indications of this is its effect on the gums, which generally give the first token in the form of a red line running along their margins; this is soon followed by much tenderness, swelling and pulpy thickening of a dark red color first appearing around the incisor teeth. The gums finally retract from the teeth, the tongue becomes swollen and furred and the breath foetid. There is, too, a metallic taste present in the mouth. Besides this there is more or less profuse salivation, and the glands themselves become swollen and painful. If the inflammation goes on ulceration may supervene and large portions of the gums and cheeks may thus be destroyed. The teeth will become loose and fall out, and the maxillæ even carious. The *treatment* belongs to the surgeon or physician. The administration of the mercury should be discontinued for a time. Locally astringent mouth-washes are useful, whilst internally tonics should be given. Where you wish to get the mercury quickly out of the system, iodide of potassium will be found the most useful drug, though it often produces increased salivation at first. We should not forget that when the patient is kept too long under its influence, very serious nervous and other affections may result, especially the so-called metallic *tremor* that affects all the muscles of the body. In some persons the effect of the drug is produced much more quickly than in others, and it has an especially debilitating effect on persons already exhausted by disease. Children under two years of age are rarely if ever salivated, but we must remember a peculiar malformation of the permanent teeth which Mr. Hutchinson has pointed out as being due to the incautious use of grey and other teething powders. The defect of development is said to be due to the stomatitis that is caused by the mercury, leading thereby, secondarily, to inflammation of the developing enamel organs. If for no other reason than this we ought to be familiar with the ill effects of mercurialism. As a query by the way, Ringer remarks that there are those who cannot take even the smallest doses of mercury without it causing toothache. Is this independent of caries? Perhaps some gentleman may be able to confirm this statement, which I thought of sufficient interest to permit of its being mentioned here.

We must now pass on to the consideration of *Chronic Lead*

Poisoning so far as it affects the gums. It is a condition that one might meet with occasionally and perhaps quite accidentally in private practice and it is well that we should be familiar with its appearance. In *plumbism* we get the "blue line on the gums." This was first described by Dr. Burton, and is due to the action sulphuretted hydrogen on the lead; the latter having been previously deposited in the substance of the gums, "black" sulphide of lead is formed, hence the discoloration. We have the development, then, of a narrow bluish or violet line along the free margins of the gums wherever the latter come into contact with the teeth. The sulphuretted hydrogen is formed by the decomposing matter accumulating around the necks of the teeth. Where there are no teeth there will be no place for the tartar or food to collect, and hence there will be no sulphuretted hydrogen, and therefore, also, no "blue line" formed. It appears first and is always most marked around the incisor teeth, especially the interdental portions, and this is particularly the case when the teeth are not kept clean. It may extend to the whole of the gums and even to the cheeks. The gums themselves are frequently retracted thereby, causing the teeth to appear elongated; the latter are sometimes discolored, but whether this is in any way due to the lead or not I am uncertain. When present, as it almost always is, it forms an infallible diagnostic sign of the presence of lead in the system; it is, however, occasionally absent, or at least very faintly marked, when the teeth are kept scrupulously clean. In rare cases it has been developed in the course of a few hours by two or three medicinal doses of lead. It is, of course, mostly found in painters, plumbers, etc., and those who are being continually brought into contact with it; and such patients may yet be free from all other symptoms of plumbism. Where there are no teeth it may be quite absent. When we remember the many very serious digestive and nervous paralytic troubles that arise from chronic lead poisoning and the very many different ways in which lead may be quite ignorantly and accidentally taken into the system, it is, I think, most advisable and indeed highly important, so far as the patient is concerned, that we should very carefully inquire into all cases in which, from the condition of the gums, there is the slightest suspicion that the patient is the subject of plumbism. If our inquiries as to his general health, habits, etc., only tend to confirm our suspicion, we

should then most certainly warn our patient as to his possible condition and urge him to obtain medical advice on the point. I only lately came across such a case at this hospital. I regret to say I cannot show you the patient to-night. The blue line along the gums was very well marked and the teeth were in a dirty condition generally. On inquiry he told me he was a gas-fitter, etc.

(To be concluded.)

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

SULPHURIC ACID AND TARTAR.—DR. KENNERLY says it is a mistake to suppose that sulphuric acid will soften tartar; the action of the acid upon the tartar is to form an insoluble substance.

CARBOLIC ACID ANTIDOTE.—The *Med. Presse* advises the use of common soap in cases of poisoning by carbolic acid. It should be given immediately and repeated until all symptoms of poisoning have disappeared.

COCAINE AS A SENSITIVE DENTINE OBTUNDER.—It is said that by applying a saturated solution of cocaine in glycerine to sensitive dentine, better obtunding results may be obtained than from the use of the drug in any other way.

INSTRUMENT TEMPERING.—DR. ANDRES takes the crystals of cyanide of potassium and melts them in an iron crucible; heats the instruments in this liquid, and then dips them into a solution of silver, such as is used for silver plating. By doing this he gets an instrument that will stand better than if tempered by any other method.

A SUPERIOR BROACH.—DANIEL B. FREEMAN says: To convert jewelers' broaches into superior dental broaches, dip a dozen into sperm oil, lay on a sheet of tin or brass, ignite the oil and allow it to burn off. This can be repeated until any degree of softness

occurs. This is equally valuable in giving spring temper to small instruments.—*Dent. Review.*

CHANGE IN THE ANTRUM.—DR. HEATH affirms that the antrum grows smaller as age advances, but DR. ABBOTT thinks that depends upon circumstances. Where teeth remain in the jaw he thinks it doubtful if there is any material change. Where they are removed early, by absorptions of the process and jaw-bone, the antrum may be infringed upon and made shallower than it was originally.

ORIGIN OF PYORRHEA ALVEOLARIS.—Regarding this disease DR. F. A. WILLIAMS of Ft. Scott, Kansas, says in an article to the *Archives* that if it has a catarrhal origin it seems strange that in practicing dentistry seven degrees north of this, and where catarrh was very prevalent, himself suffering severely from it, he found but one-sixth as many cases as at his present location where the mere change has relieved him of the disease.

VULCANIZING TIME.—DR. A. P. SOUTHWICK, of Buffalo, N. Y., says 280° to 285° F. is the highest temperature that should be employed and the time should be two hours. Dr. A. H. Hilzlm, Jackson, Miss., heats the vulcanizer up to 300° F. inside of twenty minutes and vulcanizes at this heat for 30 minutes occupying in all but 50 minutes. Both claim superior results.

IODOFORM OIL.—Prepared by shaking amorphous (not crystallized) iodoform with 10 parts of oil of lavender, whereby the iodoform becomes very finely divided. Bornträger, in the *Chem.-Tech. Ztg.*, recommends it as an excellent preparation of iodoform for application to wounds, etc. This oil has a pleasant odor and keeps for half a year, but at the end of that time iodine separates, the preparation becomes brown and useless.

CONTOUR OR CROWN. WHICH?—DR. J. W. WASSALL says: The tendency just now is to crown rather than make large contours. I should rather incline to making large contour operations in young patients than to removing the crown, providing it will last but a few years. If we are certain that the filling will preserve the tooth for say five years, in a young person, I would prefer to make the filling. The crown will come soon enough.—*Ill. Trans.*

ELECTRICAL ACTION IN THE MOUTH.—DR. CARROLL thinks that while gold and continuous gum plates have been called the best, still the mucous surface under them becomes irritated. Also where gold is used absorption occurs, due he thinks to electrical action, gold being positive, the enamel negative and saliva the conducting fluid. Where clasps are used the teeth break down as supposed by friction, but he thinks it principally due to electrical action which he believes is also the principal cause of failure of gold fillings at the cervical border.

GUTTA-PERCHA SOLVENT.—It is not generally known that *Cajaput Oil* is a good solvent of gutta-percha; it has, however, some disadvantages which may be overcome by using the following formula, which will be found very useful:

Cajaput Oil

Chloroform a a

Gutta-percha, q. s.

This will be found effective for lining cavities and smearing root canals previous to packing with gutta-percha.—*Dent. Record.*

OBTUNDING PAIN IN EXTRACTING.—DR. A. T. PEETE says: In all cases of extraction, three preparations which I use have proved very valuable. Peacock's Bromides (not a patent medicine) is the best sedative I have ever met with; it is a great blessing to nervous patients. Campho-phenique, or carbolate of camphor, is invaluable for application to sockets after extraction; its effects appear almost magical in relieving pain. I value it even more as an obtundent than as an antiseptic. Wine of coca is the correct thing for nausea, caused by extraction; a dose of two ounces gives prompt relief.—*Archives.*

TREATING DISEASED ANTRUM.—DR. R. M. STREETER says: I believe diseased antrum is more often over-treated than otherwise. Little or nothing except to provide for and keep the parts clean should be done after the surgical part of the operation has been completed. For cleansing the cavity I use peroxide of hydrogen, hydronaphthol, or salt and water; for local stimulant, equal parts of iodine and alcohol; in case of much ulceration of the mucous membrane, a weak solution of chloride of zinc. And it is a great comfort to the patient if these remedies are used slightly warmed. My method is, after filling the syringe to place it in moderately hot water for one or two minutes.—*Cosmos.*

[His method of preparing *Carbolate of Camphor* was described in this department on page 393, August number, '88, OHIO JOURNAL.]

ANTIPIRYN AS A LOCAL STYPTIC.—DR. MARIE relates a case in which a boy of 14 suffered from persistent bleeding after the extraction of a molar tooth. Perchloride of iron was without effect, and so much blood was lost that syncope was induced. On recovery, the hemorrhage again broke out and perchloride of iron was once more tried, but vainly. Dr. Marie then plugged the cavity with two or three pledgets of lint steeped in solution of antipyrin. The bleeding at once permanently ceased. It was noticed that while the perchloride caused severe pain, the antipyrin was not objected to. Dr. Marie suggested that the antipyrine action of this and similar drugs may possibly be due to the fact that they diminish the blood-supply by their astringent effect on the blood-vessels.—*Concours Med.*

SULPHUR FOR SETTING CROWNS.—DR. H. DEAN's method of procedure is as follows: The root and crown having been prepared he applies the platinum loop of the electric cautery and heats the canal as hot as is safe and pleasant. If the canal is not dry the cement will not adhere. With the loop at a low heat smear the inside of the canal and the end of the root with sulphur, and while it is still warm take the crown in the fingers that you may not get too much heat, and heat the pin and heavily coat it with melted sulphur, then place it in the root, pressing firmly, and at the same time getting the alignment. In a few moments all is cool and fast. If you wish to remove or change the position of the crown, take a small pair of straight forceps and heat the beaks quite hot, grasp the crown and in a few moments the cement is soft and you can do with your tooth as you please.—*Dental Cosmos.*

DIAGNOSIS OF PULP STONES.—Should a patient present with a tooth aching excruciatingly, uncontrollable by usual sedatives, exposure seemingly very minute, arsenic will probably be resorted to. Should the patient return, reporting greatly increased pain, diagnosticate "pulp stone"; administer gas, and remove with bur. This will be found in most cases difficult, as the nodules will be found very resistant. Bur around the nodule

which closes the opening to the chamber. This will be found to be the largest one, those in the chamber being small. The patient will probably recover consciousness before the nodule is removed, but it can be removed subsequently with an excavator, and treatment thereafter will be simple. Pulp stones will resist and retard the action of arsenic indefinitely. Therefore, even when the arsenical application does not cause pain, if the pulp responds after repeated doses, suspect the existence of pulp stones, and proceed as above.—*Archives*.

SHRINKAGE (?) OF COPPER AMALGAM.—DR. ST. GEORGE ELLIOTT in a paper read before the Odontological Society of Great Britain states that from experiments with copper and other amalgams inserted in celluloid, human teeth, glass tubes and by the specific gravity test he finds that the percentage of shrinkage in copper amalgam is from 5 to 7 per cent. of the mass, or four times as much as the silver amalgams used. Masses tested weighed ten to twelve grammes, kept for six days at a temperature of one hundred degrees. The shrinkage is greatest within the first 24 hours, and subsequently it seldom remains the same for any length of time, shrinking and expanding in a small but measurable quantity. He states also that the edge strength of copper amalgam is inferior.

[These results are contrary to those in actual practice, and we believe that the varying conditions of the mouth, not obtained in laboratory tests, have their influence, and that the only true test of these materials is by a series of fillings in the mouth.]

INLAY CYLINDERS.—In my practice I fit one end of the cylinder in the porte-polisher, and cement or clamp it securely therein. I then hold the cylinder against a corundum wheel revolved in the opposite direction, or slab, and running the porte-polisher in the hand-piece of the engine at a high speed, grind a length of the cylinder equal to the depth of the cavity, until that portion of the porcelain exactly fits the cavity. This having been cut truly circular, and flat-bottomed, no undercut being required—for when the porcelain is properly fitted it will not be easily removed, even before cemented. After grinding the cylinder to a close fit, and marking with a fine-pointed pencil the depth of its insertion in the cavity, I remove the cylinder, and with a thin corundum disk cut a groove around it close to the pencil mark, and

so deep that a very little wrench will snap off the inlay. This I then smear with oxyphosphate cement, and quickly insert in the cavity with force enough to break off the inlay from the cylinder. Some hours afterwards, when the cement becomes hard, I grind and polish the inlay flush with the tooth.—DR. B. C. RUSSELL in *Cosmos*.

MANIPULATING CEMENTS.—DR. WASSALL says: I think there are two secrets in the use of cements that will give us better success with them. First to take just enough of the plastic material on the instrument to fill the cavity and burnish it until it is exactly full, so that it will not need to be cut or ground down after it has hardened. This leaves a surface which has an outside gloss to it, of a condensed vitreous nature. The other is to give the cement more time in setting before the rubber-dam is removed. It was Dr. Harlan who told that he allowed the rubber to stay on, as an invariable rule, one hour, after making a cement filling, and I have followed that plan in a majority of cases since. I find it is possible, in most cement fillings that I make, to put the rubber on another tooth which may be filled with gold probably after making the cement filling. Or the rubber-dam holder may be removed, letting the rubber hang and another rubber may be adjusted in another place. Otherwise the patient should wait the full time while you go on with another appointment. I notice that cement fillings I have made since I adopted these two points have been very much better than they ever were before.—*Ill. Trans.*

PARR'S REMOVABLE BRIDGE-WORK.—DR. PARR exhibited some removable bridges at the New Jersey State Dental Society, and a correspondent in the *Dental Review* describes them as follows: The crowns or caps for the bridge anchorages are made as usual. To these are attached gold bands, so as to form longitudinal slots or grooves on each cap, into which a spring may be inserted. This spring is heavy, and being attached to the teeth forming the bridge—a spring at each end of the ridge—when placed in position, the springs going down into the slots in the *permanently attached* crowns, the work is as firm and rigid as could be wished apparently, and the patient can remove and cleanse whenever desired. It is claimed that it will hold plates of all kinds—that no plates containing air chambers, or with clasps, need be used;

that particularly in the case of lower teeth—diverging and converging—where often teeth were extracted to insert artificial ones, this method can be used nicely, when other bridges fail. That it is a valuable method no one can doubt. It is practical, easily removed, and cleanly as can be expected. It is so nicely adjusted that the patient can readily remove it and replace it without trouble.

TO PREVENT INFECTION FROM TUBERCULOUS PATIENTS.—W. S. SMITH says: We are told that in the blood of the tuberculous patient we find the spores of the bacillus, and in the sputa we find the spores and bacilli. We might reasonably suppose that both would be found in the saliva. How shall we obviate infection? I would suggest that we put in the spittoon $\frac{1}{2}$ ounce of sulphite of soda, before it is used by the patient, and when it is to be emptied, put into it $\frac{1}{2}$ ounce of acetic acid, which will unite with the soda, and set free sulphurous acid gas. The vessel should be covered until effervescence ceases. The evidence we have that sulphurous acid gas destroys the bacilli, is sufficient to uphold us in this procedure. For cleansing the burs, before putting them on the wire wheel of the dental engine, dip them in wood creosote or an alcoholic solution of menthol, either of which has been proven to be a bactericidal remedy. Lastly, never have an open pitcher or bucket, for the purpose of containing drinking water, for we find from the investigations of Cadeat and Maleat, that the disease is more surely developed through the use of a liquid vehicle containing the bacilli, than by any other source, the water becoming contaminated by the dust settling upon it.—*Dent. Review.*

TO GET THE MAXIMUM DISINFECTANT POWER FROM CARBOLIC ACID.—DR. DUJARDIN-BEAUMETZ says: A mixture of two grammes of carbolie acid in one hundred grammes of water, containing one gramme of hydrochloric or two grammes of tartaric acid, kills in twenty-four hours the spores of bacillus anthracis, while these same spores are found living after thirty days' soaking in the same solution without the acid. This is a fact of great importance, which you would do well to bear in mind whenever you have occasion to perform disinfection with carbolized solutions. To get the maximum of disinfectant power from your carbolie acid, you will add to every 100 parts of water 2 parts each of car-

bolic acid and tartaric acids. This combination, too, will obviate the necessity of as much alcohol as you would otherwise be obliged to use in making your strong phenic solutions. Alcohol diminishes the power of phenic acid, and Neber showed that if human surgery did not derive from phenicated solutions the same advantages as veterinary surgery, it is because in the former alcoholic carbolized solutions are employed, while in the latter only the glycerized solutions are in usage. Koch in his very positive experiments, has shown that alcohol diminishes considerably the disinfectant action of phenic acid; it coagulates albumen, and thus hinders the penetrating power of the acid.—*Ther. Gazette.*

CROWNING FRAIL ROOTS.—At a recent meeting of the New York Odontological Society DR. S. G. PERRY, as reported in the *Cosmos*, gave his method of crowning frail roots that are liable to split apart, as follows: A very narrow band is fitted carefully around the neck of any root, a cap placed on the top of that, and a pivot fitted in the root and through the cap, the whole being then soldered together. One or two vent-holes are then drilled through the top of the cap, and it is set to place with oxyphosphate, the excess coming out through the holes. These holes are then reamed out and filled with gold, and the edge of the band under the gum is burnished to the root. The tooth is then fitted to this cup and set on the projecting pivot with oxyphosphate. The advantage of this plan is that the root being slightly tapered with proper paring instruments, the band can be made to fit absolutely, while the excess of oxyphosphate is gotten rid of through the vent-holes instead of being squeezed out around the edge of the band. The crown used is similar to the Howland crown. Another method employed with these as well as the old-fashioned pivot teeth, is to prepare the root even with the outline of the gum, and set a pivot into it with oxyphosphate. The end of the root is cut very smooth and even and base of the crown accurately fitted. A mat is made of several thicknesses of soft gold No. 5, and a clean hole cut in the centre of it, of the size of the pivot. It is then put over the pivot as a washer and the tooth set with oxyphosphate. If in time the cement wastes, the gold remains to preserve the root.

METHOD OF WASHING AMALGAM.—DR. L. C. INGERSOLL gives his method in the *Archives* as follows: After amalgamating

with the mercury in the palm of the hand, take twice as much of bicarbonate of soda and thoroughly mix it up *dry* with the amalgam until it becomes a flour-like powder, then use pure water to dissolve and wash out the soda. You will observe that the water in your hand has an inky blackness. This color is the black oxides or sulphides of the metals in solution. Wash in several waters and press between the fingers. Now compare the sample washed with the other unwashed sample, and you will see the increased whiteness of the washed sample; for you have washed out a dark colored powder which does not combine with the other ingredients, but remains as an impurity, which gives to the mass a grayish look. Before putting it into the tooth, it should be rolled in a piece of chamois skin, and wrung or twisted until both the moisture and the surplus mercury are pressed out. The chamois skin is so good an absorbent, that when the amalgam is thoroughly mixed, and compacted in the wringing, it will be found dry ready for use. If this black powder is not washed out, the filling will never be as bright as it would have been had the amalgam been washed. If left in, it will be afterwards dissolved from the surface of the filling, and the filling itself thereby rendered porous, and will be more likely to oxidize and be blackened by stains than it would if the surface had been rendered smooth by greater density in the packing, and then polished after a day's hardening in the cavity.

METHOD OF RAISING THE EPIGLOTTIS IN ASPHYXIA.—DR. B. HOWARD maintains that the chief cause of asphyxia is the falling back of the epiglottis over the laryngeal orifice, and that the only way of obviating this is by extension of the head and neck. He says contrary to general belief, traction of the tongue, however and whatever the force employed, does not and cannot raise the epiglottis as supposed. Because (a) the tractile force supposed to be exercised upon the epiglottis is arrested chiefly by the frænum linguæ, and through the muscular fibres within is expended upon the inferior maxilla, into the genial tubercles of which they are inserted; (b) the surviving force is expended almost entirely upon, and intercepted by, the anterior pillars of the fauces; (c) for any tractile force which might survive a continuous and sufficient medium for its transmission to the epiglottis is wanting. The way to make complete extension of the head and neck: Having,

by bringing the patient to the edge of the table or bed, or, by elevation of the chest, provided that the head may swing quite free, with one hand under the chin and the other on the vertex, steadily but firmly carry the head backward and downward; the neck will share the motion, which must be continued until the utmost possible extension of both head and neck are obtained. Sometimes a slight elevation and extension of the chin merely will at once check stetor or irregularity of breathing. From over thirteen thousand fatal cases of asphyxia in England alone during the last three years, the author selected over one hundred unequivocally attributed to this administration of anæsthetics, and in which, in all probability the tongue was skillfully pulled forward in the recognized way, but the patients died. In each case the epiglottis in all probability was not raised, and continued until death was complete.—*Lancet*.

A QUICK AND EASY WAY OF CONVERTING THE ORDINARY LOGAN CROWN INTO A BAND CROWN.—DR. E. L. TOWNSEND gives his method in the *West. Dent. Jour.*, as follows: Prepare root as usual for the Logan crown. Adjust crown so that it articulates properly. Measure root with fine wire. Cut band so that it *fits*. Solder and burnish down on root.

Shape a plug of wood to correspond to size of Logan pin. Place in root cavity, and fill space between band and plug with modelling compound; chill and remove band and plug intact. Melt fusible metal by holding over annealing lamp with a pair of pliers; when melted place band over socket, allowing wooden plug to enter socket; cool and remove modelling compound and plug; this gives a tight grasp on lower end of band, and does not allow it to change its shape. While fitting the crown into it, place the Logan or Brown crown in the band, allowing the pin to enter the socket; drive down until the porcelain comes in contact with the metal. In this way you stretch the gold around the porcelain; now burnish down tightly. If carefully performed, the articulation should be the same as before the band was put on.

This is the strongest way a crown can be set, being a combination of dowel and ferrule. It need not show much gold. It saves time and money to the operator. Thirty minutes is ample time to fit the band, and fit the porcelain to it.

You do not need to leave the operating room. 18k. S. S. W. solder will flow by holding the band over an ordinary annealing lamp, with a pair of pliers grasping the twisted ends of the binding wire.

Use nothing heavier than No. 30 plate for bands—No. 32 S. S. W. crown metal is just the thing.

AN IMPROMPTU INTER-DENTAL SPLINT.—DR. W. N. MURPHY says: G. W. Mc., age sixty-two, received a fall, breaking the lower jaw in three places. Fracture No. 1 was through the symphysis and splitting out a little to the left side. No. 2 was just in front of the angle on the right side, and No. 3 was through the ramus on the left side, running diagonally from anterior lower portion to the posterior upper portion.

I found only two teeth in the upper jaw—a canine and lateral—badly worn down, and five anterior teeth in the lower jaw, which made it a difficult case to determine the best procedure. I adopted the following simple treatment: First, made an outer splint of modelling compound to approximately fit all of the lower jaw, extending well up around the chin and far back around the ramus, hardened in ice water, and put in it a small quantity of plaster batter, and while the physicians held the parts in apposition I placed it in position, and when well hardened, I took a partial lower impression cup, one intended where the anterior teeth remain in the mouth, sawed the handle nearly off, so that it could be easily broken, then filled the cup with modelling compound of the hardest variety, just as hot as the patient could stand, and placed in position on the jaw, just as if I were going to take an impression, then brought the two jaws together so as to force the two teeth in the upper jaw into the excess of material that forced through space in the anterior portion of the cup, then hardened with ice water, and put on the necessary bandages. This remained until the tenth day, when the inflammation was so reduced, it necessitated the removal and a fresh one, which remained until the twenty-fifth day.

The patient was directed to keep the mouth well flooded with ice-cold lybrine water. The splints were removed on the twenty-fifth day and the parts were all united.—*Tex. Dent. Jour.*

ANNEALING GOLD.—In an article in the *Dental Review* DR. BLACK states that there are many gaseous substances frequently

present in the atmosphere that condense on gold foil and many occasionally present that are fatal to the welding property of gold, because they cannot be removed by the annealing process and metals cohere or weld only when clean surfaces are brought in contact. Of these the gaseous compounds of sulphur, and of phosphorus, are the most dangerous. He finds that by keeping the gold in the presence of ammonia it is perfectly protected, works perfectly, non-cohesive when unannealed, and the welding property is all the more perfect and uniform when it is annealed. All that is necessary is to keep the gold drawer swelling of ammonia.

The best results in annealing are attained by placing the foil as prepared for use on a mica slab that is properly supported over a bunsen gas flame, or that of an alcohol lamp. This should be so placed that the flame will keep the slab heated very nearly to redness, just so that it will show something of a glow in a dark corner. The gold for use in a given case may be placed on this and kept hot while the manipulations are progressing, and thus time will be given for the most perfect development of its welding property. The lamp should be so arranged that the slab may be heated to a full cherry red in case the gold in any particular case does not work satisfactorily.

The foil-plier plan of annealing, now most universally used, is capable of giving very fair results if carefully done, but is subject to much abuse. In the first place, in the lighting of the lamp, if it be an alcohol flame that is used, the lighted match is sometimes brought in contact with the wick and leaves a bit of phosphorus upon it to give off its fumes and injure the gold as it is being annealed.

Operators are liable to take too much of the gold between the points of the pliers. In this case such portion of the gold escapes annealing, the points of the pliers not being heated sufficiently. These unannealed portions will cause the surface of the filling to flake, or to pit, often very badly, although every other part of the operation be ever so perfectly done. The very smallest portion of gold possible should be included between the blades of the pliers, and, in cases of unusual importance, as in building down a thin corner of an incisor, where a very minute failure of the weld might cause a break, it is best to catch the gold in another place and repeat the annealing process in order that every portion of the gold may be annealed.

OBITUARY.

DR. P. J. KINNAMAN.

DR. P. J. KINNAMAN, of Tiffin, Ohio, died on February 19, 1889, aged 66 years, 11 months and 4 days.

The deceased was born at Petersburg, Columbiana county, March 6, 1822. In 1835 his father moved to Wood county. Dr. Kinnaman moved to Tiffin in 1857 and subsequently served an apprenticeship in dentistry. A few years later he opened a dental office and followed his chosen profession until the beginning of his last illness a few weeks ago.

He was married to Miss Eleanor Hull, daughter of the late Joseph Hull, of Lima, May 28, 1846, and to them were born three children, who are still living—a daughter, Mrs. A. F. Wheeler, of Lima, and two sons, Charles S. and Howard W.

The deceased was a member of the Trinity P. E. church, and in every walk in life he was a consistent christian. During the thirty and more years of his residence in Tiffin, Dr. Kinnaman has enjoyed the confidence and esteem of his fellow-citizens, and after a long and useful life he has gone to his long home leaving to his family that best and most priceless of all legacies—an honored name.

His business successor, Dr. Gordon, says: "During my business career with our lamented friend and professional co-worker, I always found him as a friend to be loving, amiable, kind hearted and ready to even lay down his life if necessary for those whom he considered near and dear to him. Fatherly in all the word implies, always with a smile and kind word or a joke for those with whom he might come in contact. *In no instance*, as intimate and warm friends as we were, did I ever hear him make known his troubles. What ever they may have been, and we know he had them, they were ever kept sealed within his own bosom."

We, in common with the entire community, extend to the bereaved widow and children, our most tender sympathies.

DR. FLAVIUS SEARLE.

DR. FLAVIUS SEARLE, of Springfield, Mass., died February 10, 1889, aged 75 years. He was one of the pioneers of den-

tistry, locating in Springfield in 1837, and practicing there up to the time of his death. He was the founder and first President of the Connecticut Valley Dental Society, and an earnest worker in the cause of advancing the science and art of dentistry. He was widely known in the profession, and the announcement of his death will be received with regret by all who knew him.

DR. E. H. LEWIS, (OF MOBILE, ALA.)

HE was born in St. Albans, Vt., August 4, 1830; was a student of Dr. Gilman, of St. Albans, in 1849-50; practiced at one time in Milan and Toledo, Ohio, but failing health compelled him to seek a warmer climate, so he started south about 1856, where he died January 25, 1889.

DEATH OF THE WIFE OF A PROMINENT DENTIST.

MRS. EMMA RADCLIFF, wife of B. T. Radcliff, D.D.S., Paoli, Ind., died February 18, 1889, of pulmonary consumption, aged 34 years.

Mrs. R. was a most excellent, christian lady and a member of a large and highly respected family. She leaves a husband—a true votary for about twenty years past, to the dental profession.

U. H. How, M.D.

Societies.

“Wherewith one may edify another.”

MEETINGS.

Mississippi Valley Dental Society meets annually at Cincinnati. Next meeting on first Wednesday in March, 1889.

Kansas State Dental Association meets April 30, 1889, at Topeka.

Iowa State Dental Society meets first Tuesday in May, 1889, at Des Moines.

Michigan State Dental Association meets first Tuesday in May, 1889, at Grand Rapids.

Illinois State Dental Society meets second Tuesday in May, 1889, at Quincy.

Northern Ohio Dental Association meets at Cleveland on the second Tuesday in May, 1889.

Georgia State Dental Society meets second Tuesday in May, 1889, at Tybee.

The Dental Society of the State of New York meets on the second Wednesday in May at Albany.

Mississippi State Dental Association meets third Tuesday in May, 1889, at Vicksburg.

Nebraska State Dental Society meets third Tuesday in May, 1889, at Beatrice.

VERMONT STATE DENTAL SOCIETY.

THE Vermont State Dental Society holds its next annual meeting at the Pavilion Hotel, Montpelier, March 20th, 21st and 22nd, 1889.

Hotel rates \$2.00 per day. It is desired that as large an attendance as possible be had, so those who can should make it a point to attend.

The papers and clinics will be as follows:

Paper.—Tin and Gold as a Combination Filling. Dr. G. H. Wells, St. Albans.

President's Address.

Paper.—Some Results Obtained by the Use of Iodoform. Dr. E. B. Davis, Concord, N. H.

Paper.—Dr. G. H. Swift, Manchester.

Incidents of Office Practice.

Paper.—Describing the Making of Obturators. Dr. Jas. Lewis, Burlington.

Paper.—Physiological Treatment of Cleft Palate. Dr. H. A. Baker, Boston, Mass.

[Dr. Baker has kindly consented to have one of his patients present, which will make the subject very interesting.]

Election of officers.

Paper.—Success. Dr. J. A. Parker, Bellows Falls.

CLINICS.

Thursday forenoon will be devoted to clinics and the presentation of specimens.

The following gentlemen will clinic:

Dr. F. F. Van Woert, Brooklyn, N. Y. Making and setting solid gold tips for abraded teeth, using instruments of his own devising.

Dr. B. C. Russell, Keene, N. H. Porcelain inlays.

Dr. G. H. Wells, St. Albans. Combination tin and gold filling.

MISSISSIPPI VALLEY DENTAL SOCIETY

Will meet March 6th, 7th and 8th, 1889, at Lincoln Club Hall, Cincinnati.

The subjects for discussion and papers to be read are as follows:

Pyorrhœa Alveolaris. H. A. Smith, Cincinnati, O.

The Nervous Patient. J. R. Callahan, Hillsboro, O.

Digital Culture. C. M. Wright, Cincinnati, O.

Calcific Inflammation, and Treatment of Pyorrhœa Alveolaris. J. G. Templeton, Pittsburgh, Pa.

Title of paper not given. Wm. M. Morrison, St. Louis, Mo.

Voluntary paper. B. O. Stevens, Hannibal, Mo.

Title of paper not given. L. E. Custer, Dayton, O.

Incidents of Office Practice.

The principle feature of this meeting will be the great number of clinics. Drs. How, of Philadelphia; Butler, of Cleveland; Morrisons, of St. Louis; Moore, of Detroit; Callahan, of Hillsboro; Hinkley, of Cincinnati; Barricklow, of Cincinnati; Conrad, of St. Louis; McMillan, of Alton; and Templeton, of Pittsburgh, will all be present and give clinics. Dr. Wick, of St. Louis, will give his method of gold filling.

SOUTHERN ILLINOIS DENTAL SOCIETY.

The Southern Illinois Dental Society will hold its third annual meeting at Carbondale, April 9, 10 and 11, 1889. A cordial invitation is extended to all.

Exhibitors are invited to correspond with Dr. T. W. Prichett, Whitehall, Chairman Ex. Com.

Ample accommodation will be provided for clinics and exhibits.

G. W. ENTSMINGER, *Pres't.*

C. B. ROHLAND, *Sec'y.*

ST. LOUIS DENTAL SOCIETY.

At the annual meeting of this society the following officers were elected for 1889: President, Dr. A. J. Prosser; Vice-President, Dr. J. Warren Wick; Rec. Secretary, Dr. Jessie E. Groshneider; Cor. Secretary, Dr. William Conrad; Treasurer, Dr. Henry Fisher. Publication committee: Drs. H. H. Keith, John G. Harper, and J. B. Vernon. Committee on ethics and elections: Drs. J. B. Newby, Wm. N. Morrison, and A. H. Fuller. There were seventeen meetings held and fourteen papers presented during 1888.

WM. CONRAD,
Cor. Secretary.

Books and Pamphlets.

HAMILTON'S MEDICAL JURISPRUDENCE. A MANUAL OF MEDICAL JURISPRUDENCE, WITH SPECIAL REFERENCE TO DISEASES AND INJURIES OF THE NERVOUS SYSTEM. By ALLEN McLANE HAMILTON, M.D., one of the Consulting Physicians to the Insane Asylums of New York City, etc. Second edition revised. 380 pages. Illustrated. Handsomely bound, \$2.75. E. B. Treat, Publisher, 771 Broadway, New York.

This is a practical work, doing away with those long and tiresome details which works on this subject so frequently give; yet all necessary details are given—plain, clear, and concise.

It is very fully illustrated with cases drawn largely from *American* sources, and hence better calculated to meet the wants of *American* physicians and legal advisers—a feature that is not always to be found in similar treatises. The leading chapters embrace Insanity in its Medico-legal Relations; Hysteroid Condition and Feigned Disease; Epilepsy; Alcoholism; Suicide; Cranial Injuries and Spinal Injuries.

The first chapter defines Insanity, its general indications, classification and Hereditary Influence—Including Post Mortem Examination of the Insane (with plates of the typical and a typical brain. Under the legal Relations of Insanity we have Legal Tests—The Guiteau case—Physical Tests—Duties of Medical Experts—Tricks of Counsel—Illusions, Hallucinations and Delusions—Reasoning Mania—Contracts made by the Insane—Testamentary Capacity—Old Age and Dementia—Undue Influence—Medico-Legal Relations of Aphasia—Marriage and Insanity—Insurance Frauds—Responsibility of Deaf and Dumb—Criminal Responsibility—Responsibility in Relation to Imbecility—English Test of Responsibility; American Decisions on it—The Test of Right and Wrong—Impulsive Insanity—Commitment of Lunatics and State Laws Regulating it—Concealed and Feigned Insanity, etc. The chap-

ters on Cranial and Spinal Injuries are particularly valuable, for the numerous decisions cited from our courts in connection with suits for damages from Railroad Collisions, etc.

EXCESSIVE VENERY, ETIOLOGY, PATHOLOGY AND TREATMENT INCLUDING DISEASES RESULTING THEREFROM. By JOSEPH W. HOWE, M.D., Late Professor of Clinical Surgery in Bellevue Hospital Medical College, Fellow of the New York Academy of Medicine, Visiting Surgeon to Charity and St. Francis Hospitals. Second edition revised. pp. 300. New York: E. B. Treat, Publisher. Price \$2.75.

This volume contains in addition to the results of the author's experience obtained in hospital and private practice, the substance of a course of lectures delivered in the Medical Department of the University of New York, on the Results of Excessive Venery, Masturbation and Continence, to which is added the peculiar methods of treatment employed by various authorities in Europe and America. The causes, diagnosis and treatment of the various disorders that marshal themselves under the general term of excessive venery are clearly and instinctively presented, and many curious experiences detailed bearing upon the mental influences connected with the use and abuse of the sexual act. The volume is complete as a book of reference for the student and practitioner of medicine.

THE STORY OF LOUISIANA. By MAURICE THOMPSON. Being the third volume of the new series, "The Story of the States," edited by Elbridge S. Brooks. Boston: D. Lothrop Company. One volume, 8vo, fully illustrated. Price \$1.50.

Of all the States of the Union, Louisiana is most dowered with the gifts of romance and associations. Its varying fortunes as a colony now of France, now of Spain, its attraction to adventurers from the North, its picturesqueness of scenery and population, its wealth of romance, its isolation during so many eventful years, and its use as an instrument of diplomacy by the politicians of four nations, render its story one of the most attractive and exciting in the list of the Stories of the States. Mr. Thompson is recognized as one of America's foremost prose poets; his pen is especially gifted in the domain of description, and he has entered upon the telling of Louisiana's story with an interest born of a long study of the State and her people, and with all the ardor of a lover and a student of Southern scenery and surroundings. The citizens of Maine and Oregon should find delight and interest in the stories of Kentucky, of Delaware and of Louisiana, and such books as is this of Mr. Thompson's afford the best possible means of fostering this national knowledge. It is not a statistical compilation for the politician, nor a dull historical narrative for the student or economist. It is a striking and picturesque, but faithful and reliable, sketch of one of the oldest sections of the Union.

MANIFOLD CYCLOPEDIA.—The eighth volume of Alden's *Manifold Cyclopaedia* extends from Ceylon to Club-Foot, and is fully equal to its predecessors—its numerous illustrations, handy form, neat, substantial binding, and more

than all, its skillful editing, which brings within such convenient limits such a vast amount of knowledge, so well adapted to popular needs, are a satisfaction and a delight. It seems better than any other Cyclopaedia suited for use in the homes of the masses, and our public libraries. A specimen volume, to be returned if not wanted, may be had in cloth binding for 50 cents, or in half Morocco for 65 cents; postage 10c. Address JOHN B. ALDEN, Publisher, New York, Chicago, Atlanta, Ga., or San Francisco.

WILMINGTON, DELAWARE. Its productive industries and commercial and maritime advantages. Published by the Board of Trade. Compliments of The Wilmington Dental Manufacturing Co.

This book of 80 pages gives a very complete account of the advantages, industries, etc., of the city of Wilmington, being profusely illustrated. Among the engravings we notice the familiar building of The Wilmington Dental Mfg. Co., and in a description of the manufacture of their artificial teeth we read, "The mineral from which these teeth are manufactured is a fine spar, obtained from quarries about six miles from Wilmington.

The entire process of production is one of delicate skill in both machine and hand work. In every state in the union, food mastication has been rendered easy by Wilmington artificial incisors and molars, the quality of which is unsurpassed."

LITERARY ITEMS.—Messrs. J. B. Lippincott Company announce to the profession the publication of a Cyclopaedia of the Diseases of Children, medical and surgical, by American, British, and Canadian authors, edited by John M. Keating, M.D., in four imperial octavo volumes; to be sold by subscription only. The first volume will be issued early in April, and the subsequent volumes at short intervals.

A thorough knowledge of the diseases of children is a matter of the greatest importance to most physicians, and as this is the only work of the kind that has been published in English, it will be invaluable as a text book and work of reference for the busy practitioner.

BETTER THAN EVER.—It did seem as though the seedsmen outdid themselves last year in the line of elaborate catalogues, but here comes Vick's Floral Guide for 1889, from Rochester, N. Y., better than all previous issues. "Better" hardly expresses it—rather, we should say, far superior. It has been changed in every respect; new cuts, new type, enlarged in size (opening like an old-fashioned singing-book); contains three elegant lithographs (8x10½ inches) of Roses, Geraniums and Melon and Tomato; besides a very fine plate of the late James Vick and his three sons who now own and manage this large business. These features must make the Floral Guide valuable to their many thousands of customers in this country.

We also notice that Vick returns to the plan started by the founder of the business years ago, of offering cash prizes at the State Fair. One would think they were a little out of their heads to offer to the public such a work as the Guide free, for that is what it amounts to, when they say it will be

sent on receipt of fifteen cents, and that a certificate good for fifteen cents worth of seed will be returned with the Guide.

BOOKS RECEIVED.

DISEASES OF THE HEART. By Alonzo Clark, M.D., LL.D. New York: E. B. Treat, Publisher.

TRANSACTIONS OF THE AMERICAN-SOUTHERN DENTAL ASSOCIATIONS, held at Louisville, Ky., August, 1888.

FAVORITE PRESCRIPTIONS OF DISTINGUISHED PRACTITIONERS WITH NOTES ON TREATMENT. By B. W. Palmer, A.M., M.D. New York: E. B. Treat.

OPERATIVE DENTISTRY. By Thos. Fillebrown, M.D., D.M.D. Philadelphia: P. Blakiston, Son & Co., Publishers.

BROWN'S MEDICAL DIAGNOSIS. By J. Graham Brown, M.D. New York: E. B. Treat, Publisher.

PAMPHLETS.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH. By Carl Heitzmann, M.D., and C. F. W. Bödecker, D.D.S., M.D.S. Reprint from the *Independent Practitioner*.

ETIOLOGY OF CONSTITUTIONAL IRREGULARITIES OF THE TEETH. Eugene S. Talbot, M.D., D.D.S. Reprint from the *Dental Cosmos*.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Our Aftermath.

"It's a wise dentist that knows his own teeth."

DR. J. H. PAINE, of Middletown, Ohio, and Miss Mary J. McClellan, of Monroe, Ohio, were married January 10, 1889.

DRS. WM. H. AND CHAS. B. ATKINSON have formed a partnership at 41 East 9th street, New York, of which the senior will be Consulting Surgeon.

DR. F. W. GORDON, formerly of Detroit, Mich., succeeds the late Dr. P. J. Kinnaman, at Tiffin, O., with whom he has been associated during the past year.

THE editor of the *London Record* says: "If we are a part of the honorable profession of medicine, let us rise to the liberal principles upon which that ancient calling has been built up from time immemorial."

CHRISTIAN SCIENCE UNDERGOING A TEST.—A lady disciple of Christian Science, living at Sharon, a few days ago worked herself into such a high

state of mental excitement that she has since talked of nothing but coming purification, elevation, and other such subjects. She has thrown away her false teeth, and is daily expecting a new set from God.—*Phila. Record*.

A BILL will be presented to Congress providing for the appointment of two officers of the marine hospital service, two officers of the medical staff of the army, and two officers of the medical staff of the navy for the duty of compiling and preparing a pharmacopœia to be known as the National Pharmacopœia, and to be held and accepted as the standard. The bill asks for an appropriation of \$5,000 to carry out the work.

THE SECRET OF EASY LABOR.—That man is in a sad condition who is ever making prodigious effort to do more than he can do. It is just as easy for a star to swing in its orbit as for a mote to float in a sunbeam. Nature never sweats. The great law of gravitation holds the universe on its back as easily as the miller swings over his shoulder a bag of wheat. The winds never run themselves out of breath. The rivers do not weary in their course. The Mississippi is no more tired than the meadow brook.—*Christian Nation*.

PRACTITIONER'S COURSE.—The Chicago College of Dental Surgery has inaugurated a practitioner's course of instruction in compliance with requests from various sections of the country. It is intended to present a systematic course of didactic and clinical instruction for practitioners of dentistry. This course is open to all legal practitioners, and it is available for the young graduate who wishes to acquaint himself with the practical duties of his profession, or for older practitioners who are desirous of pursuing some special branch of dentistry, or who wish to familiarize themselves with modern advances in the various departments of the profession. Lectures begin April 1st, 1889, and continue until April 27th. Fees \$25. This fills a long felt want and we trust will result in much good.

DEATH FROM CHLOROFORM.—The following appeared in a recent issue of one of our dailies:

Miss Minnie Marseilles, one of Norwalk's most popular society young ladies went to Dr. Gill's office February 21st to have a tooth extracted, and as the operation would necessarily be painful, the doctor administered chloroform.

The tooth was extracted without trouble and the young lady, partly recovered from the effects of the drug, started to rise from the chair, when she suddenly sank back and expired without a groan.

Medical aid was promptly summoned, but after two hours' work the physicians decided that she was past all earthly aid, her heart having been affected by the chloroform.

The affair has created a profound sensation in Norwalk, O., Miss Marseilles being well known.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

NEURECTOMY OF THE INFERIOR BRANCH OF THE
FIFTH NERVE.*

BY J. H. GLASS, M.D., UTICA, N. Y.

IN an examination of the literature on the subject at my command, I find no mention of the operation of excision of the inferior branch of the fifth nerve, excepting that which contemplates the opening of the inferior dental canal through the ramus of the jaw externally. This operation necessitates the division of some or all fibres of the masseter muscle, the repair of which may not always be rapid and complete owing to its almost constant and semi-involuntary action. If absolute rest is enjoined—an essential to prompt and perfect repair—much discomfort must result from masticatory disability. As to cosmetic effect the operation is not a promising one as a more or less ugly superficial cicatrix is inevitable, and the facial contour is frequently disturbed following imperfect union of the muscular fibres or contractions incident to occasional pus accumulations. In consideration of these objections I desire to suggest an operation which I

* Read at New York State Medical Society, Albany, February 5, 1889.

believe is not open to these criticisms or to others of equal importance, although my experience with the operation on the living subject is limited to the single case which is described. Anatomically I have in several instances demonstrated the practicability of the operation on the cadaver and can see no valid reason why its employment—as a substitute for the operation usually described by our text-books—should not become general.

Two years since Theo. Walter, of Oriskany Falls, at the instance of his family physician consulted me for relief from a persistent neuralgia, of the inferior branch of the fifth nerve, of several years duration. The patient, a German of about 55 years of age, was apparently a resolute and courageous individual of naturally strong physique, but at this time was wasted and much depressed from his prolonged and almost uninterrupted pain, signified his willingness to submit to any operation however severe, and abide any result of whatever nature, provided he could obtain relief of his intolerable suffering. He declared with an earnestness that impressed one with his sincerity of purpose, that unless we did succeed, his only alternative was speedy self-destruction.

The patient declining any but a local anæsthetic, although admonished of the painful character of the nerve section, a few minims of a four per cent. solution of cocaine were deeply injected in the region of the dental foramen. The jaws were widely separated and held in position by an ordinary dental post placed on the side opposite to that of the proposed operation, an assistant steadying the head and controlling the tongue when necessary with a depressor, with the index finger over spine of the inferior dental foramen—a land mark of the greatest importance in this procedure—an opening was made with angular scissors cutting under the finger five-eighths of an inch in length backward and upward, separating the soft parts down to and about the nerve which lies in front of the artery, at this point hugging the greatest concavity of the notch just above the spine a Theobald's strabismus hook was passed under the nerve which, isolated from the artery, was seized with Wecker's clamp strabismus hook, the nerve firmly held, a hook bistoury was passed, the back of the instrument pushing the soft parts up as high as possible, the cutting edge was turned and the upper section made by a to and fro motion of the knife; with the trunk of the nerve still held in the clamp it was drawn up as much as possible and

the lower section made in the same manner completing the neurectomy—substantially, the steps were the same in the experimental operations on the cadaver.

In the case detailed five-sixteenths of an inch of the nerve trunk was removed which seems to have been ample as he has had no recurrence of his neuralgic symptoms up to the present time. It should be remembered that all nervous regeneration takes place from the central end of the nerve, and that the relief promised is in constant relation to the more nearly approximate central section. The danger of wounding important vessels must not be ignored, yet I believe little risk is entailed if we bear in mind the relation of the internal maxillary artery which, near the point involved, skirts the inferior margin of the internal pterygoid muscle.

PRESIDENT'S ADDRESS.*

BY H. L. MOORE, D.D.S.

It seems almost an empty formality for me to utter words of welcome on this occasion. The welcome that has always been extended to you by the former presidents of this the oldest dental association in the world, has borne with it a genuine heartiness and earnestness which words of mine can but feebly echo.

But speaking as the representative of the grand old dental society with whom we are united by the bonds of a common fraternity, I can with peculiar emphasis and significance extend to you the right hand of fellowship, and say that we are happy to greet you on this occasion.

Almost a half century has rolled around since the first meeting of this society. While the number in attendance does not increase to any great extent year after year, yet we have on the books of this society the names of dentists scattered throughout the world. Men whose articles on various subjects pertaining to our profession, are to be seen in medical and dental journals of the day, also whose text-books are used in the various universities and dental schools of the land.

Yet, friends, when we look around this company we do not

* Read before the Mississippi Valley Dental Society, Cincinnati, March, 1889.

see some of the old familiar faces that we have been in the habit of seeing year after year, whose attendance has brought new life and happiness as well as imparted knowledge and instruction, particularly to those of us who represent the younger membership of this society, the instruction and knowledge imparted by these grand men have been the means of straightening many a crooked path and smoothing many a rough place. I speak more particularly of Dr. Taylor and Dr. Keely—both taken away while yet in active duty. I cherish in my memory the happy thought that they are now with our heavenly Father, and that the good they have done will live after them. There is no end to the good they have done. It isn't necessary to go into the history of either one of them. As you all well know Dr. Taylor was one of the founders of the second oldest dental school in the world, which has been in operation forty-three years and is now with the largest class in its history. My first recollection of Dr. Keely was while a student. As you all know he was authority on irregularities of the jaw and teeth, and as has been his custom year after year, attended the annual meeting of this society. Dr. Keely imparted his knowledge and instruction so that we all have been greatly benefited by it. Both men were loved by the whole profession, they were happy in their family and professional relations and in doing good for others.

It is a law of our intellectual and moral being that we form our own real happiness in the exact proportion in which we contribute to the comfort and happiness of others. That only is the true philosophy which recognizes and works on the principle in daily life that—

Life was lent for noble deeds.

There is a power to make each hour
As sweet as Heaven designed it;
Nor need we roam to bring it home,
Though few there be to find it.
We seek too high for things close by,
And loose what Nature found us;
For life hath here no charm so dear,
As home and friends around us.

It has been said an author is known by his writings, a mother by her daughter, a fool by his friends, and all men by their companions. The force of example is powerful. Our tempers and habits are formed very much upon the model of those with whom

we associate. From youth to old age man is a creature of circumstances, and his course of life is shaped very largely by his environments. But not only do external associations affect and determine character, but also the motives and purposes of life which we adopt and accept lend color and direction to our actions and indicate the paths which our feet shall tread.

Thus it happens that a man's chosen associations are at once an index and a prophecy of what he is, and a faithful foretelling of what he will be.

Coming together as we do year after year we are united for the high and lofty purposes which are the objects of our organizations; we come together not as strangers, dubious of one another, entering upon some untried and experimental undertaking, but as professional brothers, moved by a common, noble, and well understood purpose.

We embrace in the purpose of our organization all those beautiful sentimentalities which cluster and cling around the idea of friendship and fraternity, and, at the same time, we include a most important element of practical utility, which applies directly to the dearest interests of life. Ours is an association, not only for pleasure, but for mutual instruction, protection, and profit.

Through the mutual coöperation of all we secure in a large measure the comfort and happiness of each individual member.

An association of the character and for these purposes brings into play the noblest and best sentiments of our human nature. We find here an influence and an element which protects our profession, which fosters and encourages the younger members of our profession, which secures domestic happiness and lends its aid to all noble, social, and civil relations of life.

We are in the world to make the world better, to lift it up to the higher levels of enjoyment and progress, and to make hearts and home brighter and happier, by devoting to our fellow beings our best thoughts, activities, and influences.

ASSOCIATION.*

BY C. R. BUTLER, M.D., D.D.S., CLEVELAND, O.

I AM prompted to present a few thoughts on the advantages of a community of effort in a given direction. To many this

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may seem a question so thoroughly settled that it has passed out of the category of dispute.

But from personal observation we find men that do not attend, and if we take them at their word, do not believe in dental associations, and yet they want to be called intelligent dentists. This is the age of associations and all kinds are formed for mutual benefit in a broad sense.

The common excuse, that "I cannot write an article nor speak," is no excuse why you should not be there as a listener, the babe has to learn to walk and talk; so with the most brilliant speaker and writer, he had to learn these things.

Some say, "Oh, there is no use to spend the time and money to attend these meetings, I can read at my leisure all that is worth having of the transactions as they are published in the journals."

We grant that the studious can gain much valuable information from the journals and text-books, but is it strictly honest with your fellows in the profession, to be getting and taking without giving anything in return? Your presence is worth something, and the use of the *one* talent is just as much of a duty as it is for him that has more.

And I want to say that many of the most valuable helps in practice are to be had only by attending these associations. Some persons have great skill in giving us pen pictures, but no doll can fill the place of the "meat baby."

The whole catalogue of modes in practice is made up of small things, suggestions of great value are often made that are so simple and familiar to the one making them that they are never formulated for the printer, consequently you must *see* or hear if you ever get them.

If all had staid at home none could point with pride to the Mississippi Valley Association of Dental Surgeons, that has had an active existence of forty-five years.

Having attended yearly some association meeting I ought to know the help that has come to me the past twenty-five years.

A good dinner is made more relishable by having some congenial companions at the table, than sitting down to enjoy it alone.

Many hints might be given by the writer to show the value of such meetings. We become acquainted and learn to love the

noble men with whom we are associated in the effort to ameliorate our own and the condition of humanity at large.

The commonalty believe in associations and they read the daily papers, so they are liable to know that a meeting was had at a certain time, they may ask, were you there? and what new things did you see and hear? It would not sound very well to say, I never go; I don't believe in these associations. For even school girls might question you on physiology or some other matters pertaining to dentistry in such a manner that your ignorance of the subject would shake their faith in you as a safe dentist, though you may have been in practice for years. Some are careful students, while some are egotistical enough to say, "I know all the little modes and how's, and I don't believe in going to the societies or having any intercourse with other dentists."

But, my dear sir, you may be as brilliant as an electric lamp, and yet cast a shadow that the smallest weakling in the profession with his tallow dip, might light up.

CALCIFIC INFLAMMATION.*

BY J. G. TEMPLETON, D.D.S., PITTSBURG, PENN.

WHEN I first saw the programme for this meeting and that my name was on it for a paper, my first thought was that after over twenty-two years experience in combating that kind of trouble I can tell them all I know about it in less than two minutes.

My next thought was that it might perhaps, be better for me to conform to the "inocuous desuetude" and treat the subject a little more elaborately.

Calcic inflammation is used as a term to express the origin of an inflamed and hemorrhagic condition of the margins of the gums so frequently seen in our practice. When such an abnormal state is found, the cause is usually so obvious, that any word alluding to its origin might be left out of the nomenclature. We therefore prefer as a name for this disease, the words hemorrhagic ulitis, but as I do not consider myself authority on nomenclature, "I add not," (as some of the old ministers used to say at the close of some of their long sermons.)

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"Pyorrhea alveolaris" is an appropriate name where the conditions warrant its use, but such cases are few in comparison with the great number properly classed as calcic inflammation and phagadenic pericementitis, (according to Dr. Black). And here we are inclined to think that perhaps the majority of our profession fail to differentiate, and also often use these terms interchangeably as if "tweedledee and tweedledum" were without variation.

For a concise and lucid description with erudite discrimination and also for the beautiful and remarkably correct illustrations of this lesion of the oral cavity, we take great pleasure in referring you to the chapter by Prof. Black, on this subject in Vol. 1, of the "American System of Dentistry." We shall therefore not weary your patience with any attempt to describe any peculiar phase of the disease under consideration. We wish, however, to call your attention particularly to what may be considered as a primary factor in the etiology of a large percentage of these abnormal conditions.

We refer now to its scorbutic origin and of its having some symptoms in common with scurvy, though differing in intensity and duration, and if we compare these departures from the normal state, either systematically or locally, we do not find petechiæ or vibices in connection with the malady which now engages our attention, but we often see what may be called a mild form of, or partial ecchymosis, the visible signs of which are observed in the pale yellow, or saddle flap color of the cuticle, there is in both the same tendency towards loosening and loss of the teeth and also hemorrhage from the gums, more or less profuse from slight causes.

Scorbutic affections are generally associated in our minds with long sea voyages and their treatment has by the people been considered as coming within the prerogative of a physician: hence the paucity of our professional literature in reference thereto, while that of the medical profession is quite extensive. So much so that Irving C. Rosse, says in the reference hand-book of the medical sciences that "to write the history of scurvy would almost be to write the history of medicine and to chronicle the sanitary circumstances of most human events, since the disease has occurred from time immemorial, both on sea and on land. That it exists on land proofs are abundant.

Hammond says, (in report on scurvy U. S. Sanitary Commission,) "that at Council Bluffs in 1820, nearly the entire garrison was attacked and many died, and the efficiency of the U. S. forces in the Florida and Mexican wars was very materially lessened by its occurrence." It existed to a very great extent in the English and French armies in the Crimea, and it also added largely to the mortality during our late war. In reference to these statements Prof. Flint says "The inconsistency between these facts and the existing state of knowledge, is in part to be explained by the inability always to secure the means of prevention in military operations, but it is in a greater measure to be accounted for by a censurable ignorance or neglect of these means." The treatment for scurvy, whether preventative or curative is almost entirely dietetic and consists of fresh meats and all kinds of vegetables.

That calcific inflammation, phagedenic pericementitis and pyorrhœa alveolaris simulate scurvy, the writer has no doubt, and in his practice has for many years insisted on the use of the same dietetic regimen, and once in five days the application of an agent that is caustic, astringent and stimulating, with occasional use of mild laxatives to correct constipation. No other systemic medication being necessary. And we will say here that when these instructions have been faithfully observed by the patient we have seen the pale yellow, tawny or septicæmic appearance of the face changed to almost the flush of youth in from four to eight weeks. But to maintain this condition, the care necessary to be observed on the part of the patient in all *bad cases* is like the "price of liberty."

The writer's treatment consists of the removal of all calca-reous or serumal deposits, arresting all hemorrhage with hot water and then apply pure and finely pulv. sulphate of copper, which is also washed out with hot water, repeating the same locally as previously stated, until no longer necessary, and we find that the fifth application is rarely required.

From the commencement of the treatment we impress upon the minds of our patients the importance of cleansing the mouth with soap, as the most necessary part of their toilet preparations, before partaking of the morning meal. Also giving specific directions in reference to an anti-scorbutic diet, viz: fresh meats, a regular use of pickles of any kind, a free use of lemons and

oranges and also the daily use of fresh vegetables, consisting of one or more of the following, viz: onions, cabbage, turnip, radishes, horse-radish, mustard, water-cresses, lettuce, spinach, celery, parsley, parsnips, carrots, potatoes, and sauer-kraut.

We know that as articles of diet onions and sauer-kraut are very much tabooed by many, especially the elite, but in our humble opinion, their affluvia is superlatively delectable in comparison with the odor coming from the mouths of many persons having this disease.

THE NERVOUS PATIENT.*

BY J. R. CALLAHAN, D.D.S., HILLSBORO, O.

WHO of the dental profession does not dread to come in contact with the nervous patient, or perhaps we might say the patient of hyper nervous temperament, who, by his hysterical conduct in the chair seems to sap the operator of all the vitality he ever possessed and make him feel as if palsied old age had come upon him, and finally when the patient is gone, exclaim, "I'm glad that patient is gone, I really declare the patience of Job would yield at the chair." Be the patient a lady, she will, perhaps, begin by telling you how she dreads the awful boring machine, the horrid rubber dam, etc., etc. She will get into your chair with wailings and moanings; the moment you begin to operate she will begin to jump, perhaps grab your hands, declaring she cannot possibly permit you to proceed. If the nervous patient be a big, strong man, he will get into the chair with many misgivings and after one or two futile efforts to stand the operation conclude you had better pull the—tooth out.

This pain and dread and nervousness is a reality with most of our patients, especially so to those of nervous temperament, and I am of the opinion that most of the fault lies with the dentist. Hundreds of people are needlessly tortured every day by the dentists of the land. This is all wrong; there is no necessity of intense suffering in the dental chair. The dentist inflicts needless punishment generally, for one of three reasons, viz: parsimoniousness, carelessness, or ignorance. Parsimonious in that he will insist on using dull and worn out instruments, is too stingy to

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subscribe for journals that he may keep posted and keep his mind active in most modern theories and practices of his profession. Careless in regard to condition of instruments; careless as to a mount of pain inflicted; careless as to reputation; seemingly unmindful of everything only to get through, and get the fee. Ignorant either from lack of appliance or lack of ability to learn of and apply the many agents and methods of lessening pain in dental operations.

Local pain obtundents are offered without number, a few good, but a large majority of them worse than useless; especially useless, are the patent obtundents.

It has been stated that by thoroughly drying cavities with alcohol and warm air and excavating with sharp instruments, all that is necessary for the obtunding of sensitive dentine and allaying accompanying nervousness, has been done.

This has not been my experience; while thoroughly drying cavities and using sharp instruments will go a great way toward comfortable operations, yet, there are many cavities on which this method seems to have but little of the desired effect.

Dr. F. H. Brimmer in the *Independent Practitioner*, Vol. 8, page 301, advocates a very unique pain obtunder. He claims to be able to obtund the tooth pulp by vibrations caused by a rapidly revolving instrument. He cut off the crown of a central incisor containing living pulp in the following manner: "A large spear-shaped drill was held in light contact with the center of the tooth at the gum line, and revolved rapidly for fifteen or twenty seconds, the contact being only sufficient to transmit vibrations. The drill was then pressed against the tooth with a little more force, and the sensibility being diminished, it was allowed to penetrate perhaps one-third the distance to the pulp, when it was again used as at first. At the the third trial the drill entered the pulp, with a probe carbolic acid crystals were gradually forced to the end of the root; in twenty-three minutes the tooth was cut off and properly shaped for the crown, which was set on the following day. The whole was accomplished almost without pain." He goes on to give the following theory in regard to the operation. He says: "There is a limit to nerve conductivity. If a nerve be continuously irritated, after a time it loses its power of transmission until time has been given for it to recover its normal condition. The continual passing of the drill exhausts the irrita-

bility of the nerve, and it no longer conveys sensation until it has had time to recover its tone." I have not as yet tried this, to me, novel obtundent, but from what I know of Dr. B. he means just what he says; and I think the method worth a trial.

Local obtundents proving themselves so very unsatisfactory many practitioners are administering chloroform for dental operations. This is a practice that cannot be too strongly condemned. Many dentists administer this very dangerous drug while excavating sensitive teeth, they will tell you that they only carry the patient to the first stage, thereby avoiding danger. This as I understand authorities on chloroform, is perhaps the most dangerous stage for dental operations. It is stated in various places by authorities that especial danger depends on the well known fact that any operation which involves irritation to the sensory terminations of the fifth pair of nerves, excites the inhibitory action of the pneumogastric nerves (through their sympathetic connections), which causes slowing of the heart's action and may terminate in fatal syncope. In the light of these and many other facts that might be mentioned, would it not be proper to say that the use of chloroform in dental operations is criminal practice?

In the *Dental Cosmos*, Vol. 27, page 12, Dr. W. H. Dwinell, of New York, gives a very interesting experience in the use of morphine and atropine, for the purpose of quieting very nervous patients; he used the morphine for its anodyne qualities, and the atropine for the purpose of overcoming the objectionable qualities of the morphine, and for the further purpose of checking the flow of the saliva. His manner of introducing it into the system is as follows: Start with one-sixtieth grain of atropine combined with one-eighth grain of morphine—dose repeated in an hour; increase dose of morphine if found necessary. Dr. Dwinelle and many other prominent dentists report very satisfactory results from this treatment. I would advise all who have not already done so, to read carefully this article referred to. This treatment like any other should be given careful attention before adopting or using it at all. I had a very agreeable experience within the short time I used it. I abandoned the practice on account of the time it consumed. In casting about for means to effectually and safely quiet the disagreeable nervousness of many patients, without taking up so much time, I began to try nitrous oxide gas. After

having used it more or less for about four years I have adopted the following method: After having opened cavity with chisel, get instruments I wish to use all ready, dry cavity with an absorbent, administer from 3 to 6 inhalations of gas; this, as you know, is a very small dose or almost no dose at all, yet it is sufficient to have a very quieting and delightful effect upon the nervous system. The patient does not lose consciousness but seems to lose that nervous dread or apprehension so often described by saying that the tooth felt as if the instrument was going clear through to the pulp. When asked if they felt any pain the patient will usually say no; or perhaps it may be as a lady said to me a few days since, when I inquired if she felt any pain, she replied, "Yes, a little, but I felt so calm and restful that I did not mind it in the least."

The gas should not be given in sufficient quantities to produce anæsthesia, but simply enter the first stage called by Prof. Guilford the exhilarating symptom. Two administrations as described will enable the operator to prepare the sensitive portion of any ordinary cavity. Many people refuse to take it, being afraid of the gas. I never insist on it except in the case of very nervous persons. If there be any danger in the use of nitrous oxide gas as here proposed, I have been unable to find either from the history of the anæsthetic or from practice; if there is any let us hope it may be made apparent in the discussion of the demerits of this rather disconnected and incomplete paper.

MISTAKES.*

BY WM. N. MORRISON, D.D.S., ST. LOUIS, MO.

WHILE busy at the chair, a patient rushes in with a necessity-knows-no-law kind of a pace. Want's a tooth extracted, has not slept a wink all night, etc. Will hear no argument for its repair. He has tried the treatment you propose before and the tooth had to be extracted after all. He then makes the time-honored remark which always brings a dentist up to the mark, "If you don't extract it I will go to somebody who will." It has ached constantly for a week and he wants to be revenged. "As I was

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eating breakfast this morning," he says, "a little piece of bread got into the cavity and it has been on the jump ever since."

You are pretty sure to make a mistake what ever you do for such a patient. If you take him at his word, you make a mistake from which he is the victim the remainder of his life.

If your persuade him to have it properly treated and filled and promise to keep him free from pain with it as long as he is within your reach, you are pretty sure to err again. Or he will have a putrescent pulp ripe to be drilled into the day you are in the country or attending some dental meeting.

Other blunders one frequently falls into are:

Cutting away too much tooth substance which should be left for natural wear or breakage.

Cutting off weak crowns for more conspicuous metal substitutes.

Drilling through the apical foramen for the treatment of abscess when we know there must ever after be an uncertainty about filling that canal.

Excavating soft dentine too close to the pulp, cleaning out layer after layer because it cuts easily and gives no pain.

Filling a cavity with one substance when another was more plainly demanded.

To call a fistulous opening through the alveolus a dangerous cancer, and frighten the patient into a spasm with "a-l-v-e-o-l-a-r a-b-s-c-e-s-s," uttered with French gymnastics and wise looks.

It has been my custom for years to saturate the spongy dentine of cavities with creosote, but I did not know all I was doing by the operation. I thought a carbolate of albumen and an arrest of ferment was enough.

But after witnessing Prof. Andrews' beautiful microscopical work on the screen I am perfectly amazed at the slaughter of the innocents I have been committing. He demonstrated how the tubuli was entered by animalculi and enlarged until the whole structure was destroyed.

It is very plain that with a few of these tubuli so enlarged directly to the pulp, capillary action by compression or suction must be very direct. The too common mistake is to devitalize the pulp.

Let us watch keenly our own as well as the mistakes of others, for there is a valuable lesson in every one.

If nature tolerates such enormous blunders and accepts the services of such bunglers, how much more comfortable she will be under the hand of skillful artists, alive with physiological and pathological anatomy, microscopy, and a desire to accomplish the greatest good.

DENTAL THERAPEUSIS—RETROSPECTIVE AND PROSPECTIVE.*

BY W. T. JACKMAN, D.D.S., CLEVELAND, O.

SINCE dental subjects and manipulations, in particular, have been so much cussed and discussed at former meetings, it was thought best to not, in this paper, discuss any particular subject, but to give a few random thoughts in a general way to dental therapeusis—retrospective and prospective. The term therapeusis is not found in Webster or Thomas; Dungleson gives it as a term synonymous with therapeutics. Its meaning is, as I understand it, the science and art of restoring abnormal to normal conditions. Dental therapeusis is the science and art of restoring the abnormal dental organs and their surroundings to comparative normality. Therapeutics has reference to the restoration of the soft parts distinctive from therapeusis. In a general way, as above stated, we will speak of some of the aids in this broad field. Retrospect is oftentimes advantageous in that we are stimulated to increased effort. Think for a moment of the difficulties the dentist of fifty years ago labored under when perchance he was called upon to restore the lost dental organs by carving artificial ones from the elephant's tusk. Compare this with our modern appliances and materials for accomplishing the same end. How the fine laboratory tools of to-day contrast with the clumsy ones of our fathers. Now think of the immortal Barnum whose love for his profession led him to give to it an invention that completely revolutionized the manner of filling teeth! Who, except a "new departure" man, would try to fill teeth without the rubber-dam? It is second only to the dental engine. The dental engine! What a chasm this noble instrument has bridged over! Who can compute its worth? Then, too, think of our

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improved pluggers—pluggers electric, pluggers automatic, dental engine pluggers, hand pressure hand mallet pluggers. Gold—cohesive and non-cohesive, alone and combined. Improved cements and amalgams to no end. Also the splendid apparatus for the administration of anæsthetics.

Did you ever stop to think of that wonderful discovery of Priestly in 1776, and of Humphrey Davy who gave it, about the year 1800, in a practical form to the world nitrous oxide gas? and, too, of our own Horace Wells who discovered sulphuric ether about the year A. D. 1844, and who now lies, I believe, in an unmarked grave, a dark blot upon the escutcheon of the dental profession? Chloroform was discovered a few years later, 1847, by Prof. Simpson of Edinburgh, Scotland.

Better dental chairs meaning more ease for the operator and more comfort for the patient. It would be useless to try to enumerate the almost endless number of smaller but exceedingly useful inventions for the use of the dental surgeon of to-day. So much for the mechanics of dental therapeutics.

The second division being medicinal we have many valuable helps to nature in the restoration of diseased parts. The dentistry of to-day is, mainly, as it has always been, not prophylactic but remedial. The trend of dental therapeutics at the present time is toward antiseptis—excited pulps, congested pulps, stagnated pulps, ulcerated pulps, dead pulps, putrescent pulps! Treatment antiseptic and disinfectant. What valuable remedies we have for such conditions. To enumerate a few will, perhaps, not be amiss. First and most important is H_2O . Then follow peroxide of hydrogen, sanitas oil, a very valuable remedy, some one has called it an organic oxide, creosote, the essential oils, bi-chloride of mercury, iodine and many others of great value. One we would not forget to especially mention is hydro-naphthol, a preparation from coal oil. It is a splendid disinfectant. A saturated solution of it should be kept conveniently at hand for the cleansing of instruments after each operation. Think of that obliging friend, the dentist, operating on your wife's or daughter's or sweetheart's teeth with instruments that had been used for an indefinite time without being cleansed! If cleanliness is next to godliness then certainly some dentists are very far removed from the gods. The dentist who fails to thoroughly cleanse both instruments and hands after each patient, is not

worthy of public patronage. I trust there are no members of the Cleveland Dental Society who are remiss in this matter.

But this is digressing. So much for retrospect. What of the prospect? We as dentists may certainly hope for still greater things. As to mechanics one would think the climax of inventive ability had been reached, yet the fact is we are still on the first round of the ladder. After considering all our advantages the question arises, "Are we the skilled dental surgeons we should be?" This interrogative must, of course, be answered individually. If we are unskillful let us ascertain the cause and try to remedy it. Are we lazy? I trust not. Are we careless? Greater's the pity. We are all in this world to do good, and if the world is not made some little better for our having lived in it, we have certainly lived in vain.

Judging from the past we have a cheering prospect in the fact that our work is being appreciated and valued more and more by the general public as the years go by. This is encouraging for two reasons, first, because of this appreciation by the public we are gaining, if we have not *already gained*, a standing socially and scientifically with other learned professions. Second, this places us on a higher plane and thus enables us to receive remuneration commensurate with service rendered. As to the mechanics of dental therapeutics of the future we are justified in believing there are heights we have not attained; there are depths we have not fathomed, there are lengths and breadths the ends of which are infinite! From the fact that medicine is not, and from its very nature never can be an exact science, but must be, of necessity, to a degree empirical, we may not perhaps expect so much from this second division of therapeutics as compared with the first, yet we believe wonders will be wrought in this direction. Now these illy arranged cogitations suggest something. If we discover, if we investigate, if we invent, if we would apply these inventions skillfully we must each put our shoulder to the great wheel of industry and, not Micawber like, wait for something to turn up, but turn up something. If these few scattering thoughts stimulate us to increased effort the writer will feel amply repaid for penning them.

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PROCEEDINGS OF CHICAGO DENTAL SOCIETY.

[Reported for the OHIO JOURNAL OF DENTAL SCIENCE by "Mrs. M. W. J."]

(Continued from page 129.)

DR. J. J. R. PATRICK read a paper setting forth the necessity and importance of a systematic and thorough

STUDY OF PREHISTORIC REMAINS,

in settling many still open questions in dentistry. The facilities for this study lie scattered under our feet, buried beneath the soil of the western prairies, once peopled by countless millions, the indestructable portions of their remains holding in their grasp the answers to many questions we are daily asking, proving or disproving many statements daily made which without such study have neither basis nor foundation.

In the discussion of this paper DR. E. T. DARBY gave a very interesting sketch of his investigations in the mummy pits of Egypt, where, with his own hands he dug out the mummies, cut open their wrappings, exposing to view the remains that had been laid away two and three thousand years ago—contemporary with Abraham, or the pyramids of Cheops. He found evidence of but one missing tooth, and two instances of caries.

He also examined the teeth of the skulls in the charnel house of the convent of St. Catherine, Mt. Sinai, where all the monks who have died in the last fifteen hundred years have been laid in tiers, in the order of the ages. His examinations were necessarily made in haste and were not formally tabulated, but with rare exceptions caries were found only in the skulls of latest ages.

DR. J. H. MARTINDALE, Minneapolis, read a paper entitled

CARIES AND NECROSIS IN THEIR RELATION TO PRACTICAL DENTISTRY.

Dr. Martindale said that in a pathological sense, diseases of the bones are identical with those of other tissues, modified, however, by the presence of inorganic material, the débris from which constitutes an additional factor of irritation to the surrounding tissues.

In defining the distinction between necrosis and caries, Dr. Martindale said that necrosis was the analogue of gangrene in

soft tissues, caries being the co-relative of ulceration. He further compared the tissues in caries to a well-contested battle ground where one soldier dies and is carried off, while another at his side valiantly carries on the contest; so of the molecules; one is carried off in pus and death waste, a healthy molecule repairing the waste—reconstructive and destructive elements simultaneously at work. In necrosis the defending forces find themselves like soldiers in a state of siege, cut off from all supplies and forced to surrender *en masse*.

In necrosis the periosteum is often lifted up by an effusion of inflammatory products; if in the lower jaw, this occurs between the inner and outer plates of the alveolus, causing a bulging out, which collapses when an outlet is forced. If this does not occur the effusions may become organized into new products filling the cavity with new bone, resulting in a permanent bony tumor.

Among the *causes* which predispose to necrosis and caries, Dr. Martindale enumerates the exanthematous diseases common to childhood—traumatism blows, kicks, bruises, etc., especially in scrofulous or tuberculous diathesis, syphilis, mercurial poisoning, the application of arsenious acid in devitalizing a tooth pulp, diseases of the teeth and their pockets, and careless dental operations. Other cases occur which can be traced to no known cause and are doubtless idiopathic.

Diagnosis is difficult in the outset, the indications to be distinguished from maxillary or alveolar periostitis; but instead of confining itself to a local area, it rapidly progresses until the teeth loosen and the alveolar and maxillary plates become disintegrated, the region being bathed in pus. In *treatment* Dr. Martindale supplements aromatic sulphuric acid by surgical interference when necessary in the removal of sequestra, observing strict antiseptic precautions, especially by the use of mercuric bichloride, also injecting peroxide of hydrogen as a test for the continued presence or arrest of pus formation. In conclusion Dr. M. cited a number of typical cases from his record book.

DR. ATKINSON commended this paper in the highest possible manner, by saying that if some one had read it in a foreign land and said that Atkinson wrote it, he would have accepted it as his own, it being almost exactly the statement of his own views and methods. Under the stress of inflammation the tissues which have been swollen and congested are melted down till granules

of embryonic tissue are separated; that is, pus. When it goes one step beyond that it desegments into the mulberry mass; then we get sanies; with further developing virulence the remnant of connective tissue is dissolved and we get ichor. Whenever there is a bluish tinge with a bad odor we have sanies and ichor besides pus. These distinctions are made for the sake of those who desire to be right. In answer to the question, "How does aromatic sulphuric acid act?" Dr. Atkinson replied that it produces chemical changes in bone; the tribasic phosphate of lime is changed into the bibasic phosphate which is more crumbly and more easily taken away. It coagulates the healthy portion at the line of demarcation forming a scab which is thrown off revealing proliferations of granulating tissue beneath. Dr. Atkinson said that he desired to repeat his teachings about the sponge-graft in favoring reproduction. Take a delicate impression, building up with wax the lost portions, making it a little flush as the reproduced tissue will shrink. Every one who knows what the structure of gum is knows that it is not like any other tissue; it is not supplied with arteries and veins, but is a congeries of blood sinuses, and is proliferated from its own walls. When reproduced it defies detection from the original tissue; it is not scar tissue. The sponge-graft must be protected by a delicate palatinum cap while reproduction is going on. In conclusion he said that he hoped all who heard him would go and do likewise.

The paper was further discussed by Drs. Brophy, Hanson, (M.D.), and closed by Dr. Martindale.

DR. R. R. ANDREWS read a paper descriptive of a lantern exhibit of photo-micrographs showing

THE DEVELOPMENT OF THE TEETH, THE FORMATION OF DENTINE, AND
ITS APPEARANCE IN HEALTH AND DECAY.

Over fifty photo-micrographs were projected upon a screen some twenty feet in diameter, showing the developing tooth in all its stages, from the first dipping down of the epithelial layer in the embryonic tissues to the completed tooth. Many of these sections showed tracts of what Dr. Andrews called "calco-globulin," a peculiar partially calcified substance composed of calcosphiretes of laminated structure like tiny onions, with a glistening hyaline appearance like fat cells. Dr. Andrews calls this the

"border land" of calcification. In his paper he said that this formation has been produced artificially by Prof. Hart and Mr. Raing, by which they claim to have found the clue to the development of teeth, bone and shell. If carbonate of lime is slowly added to a thick solution of albumen the resultant salts take this peculiar form of laminated globules, the globular form being substituted for the crystalline form in the salts of lime when in contact with albumen. This is apparently the first stage in the process of calcification of tissue. The albumen left is profoundly modified and is exceeding resistant to the action of acids, resembling rather the substance of the hard skin of insects.

Dr. Andrews has found these peculiar globular masses on the edge of forming dentine or enamel, in many sections. In one of the illustrations the edge of the dentine to be covered with enamel was overlaid with these globules, those nearest the dentine having become part of the matrix. In another the band of forming dentine was seen, about as wide as the layer of odontoblasts just within, while towards the pulp and among the odontoblasts were seen these irregular glistening globular masses. In another section, at a later stage of development, when the calcified layer of dentine is thicker, the layer of calco-globulin is much thicker.

In the discussion of the paper, on this point, DR. G. V. BLACK said that in his observations on the formation of bone and periosteum, he had observed this calco-globulin formation, but only in abnormal conditions, as in pulp-nodules, in various veins, in malformed teeth, and sometimes about the ends of long bones in young animals. In these abnormal conditions, or when left to chemical forces in jars in the laboratory, or where life-forces have not perfect mastery, it take on chemical forms, as seen in these onion like layers. But as presented in these illustrations, Dr. Black does not think that in the positions seen it is calco-globulin, but possibly an appearance due to some post mortem change.

DR. SUDDUTH said that in all his preparations of tooth-sections he had never found this special appearance, which presents itself to his mind under two aspects, either pathological or artificial.

Thirty of the views were illustrations of the preceding topics, including pathological specimens, showing interglobular spaces, etc.

Dr. Andrews then said that Dr. Black had suggested that if micro-organisms could be photographed it would go far towards convincing doubters.

Acting upon that suggestive after many failures, succeeded in obtaining results, which were then shown upon the screen. Streptococci—little round bodies in chains, the bacillus found in superficial layers of carious dentine, diplococci and micrococci, those organisms found in deeper layers, whose waste product is lactic acid, causing softening of tissues and the breaking down of dentinal tissue in caries, all were seen in numerous sections of carious dentine; in some but a few individuals in the slightly distended tubules; in others in dense masses, the tubules all broken down, or with the organisms passing from one tube to another in the anastomosing canaliculi. Contracting sections of normal healthy dentine were also shown. The organisms were shown both in natural decay and also in the artificially induced caries produced by Dr. Miller in tubes with pure culture, the appearance being identical in every particular, thus affording ocular evidence of the correctness of Dr. Miller's demonstration of the etiology of dental caries.

DR. ANDREWS said: Of one thing there can be no longer any doubt—the presence of micro-organisms in the tubules of carious dentine. Of their function each one will form his own opinion.

At the close of this magnificent display, DR. L. W. COMSTOCK, Indianapolis, read a paper on

ARTISTIC METHODS IN PROSTHETIC DENTISTRY,

illustrated by numerous large cartoons, being an extensive and continuation of the subject forming the leading article of the January issue of the OHIO JOURNAL.

Owing to the lateness of the hour this paper received less discussion than its merits entitled it to.

Just before adjournment the secretary read a paper received by mail from DR. MCGRAW, Mankato, Minnesota, who had been announced for a clinic and paper on his method of

OBTUNDING SENSITIVE DENTINE AND CONTROLLING PERIODONTAL INFLAMMATION BY ELECTROLYSIS.

Dr. McGraw's method consists in making an application on a pledget of cotton, of a 12% solution of cocaine in absolute alcohol, with 6% of alum, placing the positive pole on the cotton and the negative pole on the cheek, a galvanic current from four

cells is passed for three minutes, which is repeated after an interval of the same period. By means of the galvanic current we obtain the anæsthetic effect of the cocaine on the dentine and also the dehydrating effect of the alcohol on the dentinal fibrilla, sensitiveness being perfectly overcome.

This paper, of which this is but the leading idea, was hurriedly read and passed without comment, the hour of adjournment having arrived.

Correspondence.

"I charge you that this epistle be read."

COMBINATION OF CONTINUOUS GUM AND RUBBER.

BY DR. W. H. MILLER, CANTON, O.

EDITOR OHIO JOURNAL:—In the January JOURNAL there appears an article by Dr. Haskell, under the heading of, "A Bit of History," criticising the combination work described in the December JOURNAL. The criticism is based on the trial and failure, in the past, of several methods of combining continuous gum, with rubber attachments. Hence it is argued that this "is the same old thing," and must necessarily alike fail. He refers to the failure of the combination method patented by Dr. Fuller of Chicago twenty-five years ago; but it does not necessarily follow from this that this new combination is a failure, or that it is like the one which did fail. If Dr. Haskell had looked the matter up he would have discovered that Fuller's method was to make *the entire rim* of continuous gum in one piece. The new method makes a *block* of the six or eight anterior teeth in one piece, the balance of the teeth to be attached in the ordinary way. Certainly this is a difference; a difference which in practice is the difference between success and failure. Further evidence that this is not the same method patented by Dr. Fuller, is the fact that the *new method is patented*. The U. S. Patent Office does not grant patents on old devices. The method is totally different from that which Dr. Verrier sought to introduce. Another thing: I have not described this work for the purpose

of selling a furnace. I am not making a furnace, nor have I any interest in the sale of any furnace. What I am interested in is the value of the work itself.

Dr. Haskell says, "No patient wants to pay the cost of a new rubber plate every time he breaks a tooth." Certainly not! nor will he need to with this new work. In case a tooth breaks, it can be replaced by a suitable plain tooth, ground to fit, and attached to the plate the same as any other like repair on an ordinary rubber plate. In case the enamel should be broken, *remove the block*, repair, and vulcanize to place, just as you would in replacing a new sectional block to replace a broken one. "But that could not be done," he says, "especially if it came into the hands of a dentist who did not make continuous gum." I understand that the doctor makes a specialty of metal plates, and continuous gum on platina plates; let me ask what do his patients do when they break their plates, and happen to be in a place where no dentist is prepared to do either continuous gum or metal plate work? and there are many such places. The objection which he urges against this new work on account of difficulty of repair stands with equal force against the class of work which he so strongly advocates, so that he must either admit that his objection is now well founded, or himself abandon continuous gum and metal plates on account of the same objections.

In making full continuous gum on platina plate there is always some danger of a change of form in the plate in the process of fusing, which frequently affects the "fit," and which cannot always be remedied. The plate is also *heavy* and *thick*. By making a gold plate, adapting my *block* to this plate and attaching with rubber, you have a *better* plate than a continuous gum on platina. It is *thinner*, *lighter in weight*, *preferable in color* and will *not change its form while vulcanizing*, thus preserving its "fit." You get all the advantages of both gold and continuous gum without their disadvantages.

This new combination unites all that is *good* and *artistic* in continuous gum, with the *lightness in weight*, *adaptability* and *cheapness* which are the advantages of rubber. In my practice it has been, and is, proving a success, and I feel that it must become the most popular method for making artificial dentures. It combines more good qualities with fewer objections than anything now made or offered to the profession. It will well repay any

dentist to become a master of the art of fusing the body and enamel. The work can be done with any furnace, though my experience has led me to much prefer a gas furnace to a coke furnace. One gets good results, in far less time, with much less labor, and without entirely roasting oneself at each firing.

I have not yet exhibited this work to any dentist who has given it unfavorable criticism. Dr. Taft commends it, Dr. Lyder approves of it, and finally patients and practice are daily proving it to be all that is claimed for it.

Compilations.

"Gather up the Fragments."

SOME AFFECTIONS OF THE GUMS.

BY FRANK LANKESTER, L.R.C.P., M.R.C.S., L.D.S., ENG.

(Continued from page 132.)

There are two other metals which affect the gums in a somewhat similar manner, but their rarity makes them unimportant, and I will not detain you long in describing them. The first I allude to is silver, which metal may be introduced into the system of those working in silver mines, or those who have been taking the nitrate of silver medicinally for some length of time. It leads gradually to a permanent discoloration of the skin, which becomes of a deep uniform leaden hue, and we frequently find that this is preceded by a dark brown line on the gums. The latter, therefore, is of some value to the physician, as it indicates the necessity of stopping the administration of the drug before the *skin* becomes permanently stained. This could hardly be confounded with lead, for some definite history will be obtainable of the introduction of silver into the system in some form or other. The other metal is *Copper*. In copper poisoning a greenish line appears along the gums.

In persons of a *Scrofulous* habit, we may often notice a red line running along the margins of the gums. This, too, may be frequently seen in debilitated and other conditions. Salter relates a most interesting case of a very chronic and extensive ulceration of the gums and palate. The surface was irregular and granu-

lating, the ulceration being quite superficial. The teeth were loose, and there was no tendency for the affection to heal. The patient's appearance and history at once gave the clue to the cause of this particular diseased condition. His family had shown marked indications of scrofula, and he himself was the very embodiment of it. He was sixteen years of age, and at time of applying for advice the patient was suffering from a scrofulous ulcer on the arms, whilst the arms and legs were covered with scars the result of previous ulcers. It was a most typical example of a constitutional affection, manifesting itself locally in the form of an ulceration within the mouth. About two weeks ago, one of our members sent a case up to this hospital to obtain the surgeon's opinion and advice in the matter. I saw the case with Mr. W. Weiss. The patient was about twenty years of age, and gave a very strong family history of phthisis. She was evidently of a strumous habit herself, there being scars on the neck and obstruction of the nasal ducts, etc., besides a general debilitated condition. About ten months previously, patient said she first noticed a few white and red spots on the gum, situated over the upper left lateral root. The condition of gum has been very gradually spreading since then. The gums were very apt to bleed. On examing the gums, there was a small area over the upper incisor roots, which presented a very spongy and swollen condition, was of loose texture, and was covered with small papillæ. Tenderness and increased vascularity were well marked, the slightest touch leading to rather free oozing of blood. Along their margins was a narrow red line, whilst towards the sulcus they were of a pale color. The teeth were beautifully white and healthy, and quite clean. The palate, also, was normal. There was a continuous slight discharge, and on pressure pus oozed up near the sulcus. Here a fine probe could be passed down on to a small spot of bare bone. We came to the conclusion that it was probably a case of caries of the alveolus occurring in a strumous subject, and that the condition of the gum was secondary to it and caused by the irritation of the constant discharge, etc., from the diseased bone beneath it. I recommended her to syringe it frequently with boracic acid lotion, and to take Easton's syrup internally, and endeavor to improve her general health as much as possible. She promised to let me know how she progressed, but I have not yet heard from her.

I much regret that time fails me to say anything about the various forms of stomatitis that are of such frequent occurrence and that arise from so many different causes. The syphilitic are specially worthy of our most careful consideration and attention. Quite apart from their frequency they are of very considerable importance, and this is especially the case when present in the mouths of children during the period of development of the permanent teeth. I will only just mention a case of *Ulcerative Stomatitis* that I had under treatment about ten days ago, and from which I afterwards took this rough model. It shows very well the great destruction of gum that has occurred all along the margins, so that the necks of the teeth are laid bare for a considerable distance. Patient was a boy of about five years of age. Three weeks ago he had an attack of measles, and during the last eight or ten days the mouth has been very sore and inflamed, the gums bleeding on the slightest touch, whilst the breath has been very foetid. On examining the mouth there was a red line running all along the gum margins; the necks of the teeth were bare and bathed in pus. There was a great destruction of tissue, and the gums generally were much swollen and inflamed, bleeding freely on touching them. I ordered the child to take six grains of chlorate of potash internally three times a day, and to rinse the mouth out frequently with a gargle of the same salt, to which a little Condly was to be added. I saw him again four days later, when all inflammation had entirely disappeared, the mouth was nice and clean and the breath sweet; in fact, the patient was well and the mouth normal, excepting the destruction of tissue that had taken place.

Editor's Specials.

"Write the Vision and make it plain."

DEFINITE THOUGHT.

MUCH mental labor is lost, or at least wasted, through a lack of definiteness. This is suggested by noticing the apparent lack of aim often manifested in considering decay of the teeth.

Toothache is a symptom, and as such may suggest any one of several morbid conditions. A brief conversation with a lay-

man, intelligent in many lines, but certainly not in pathology, may make this thought clearer. What is good for jaundice, doctor? said he. That depends on the cause, we replied. This is a case of real yellow jaundice, said he. Why can't you tell me what to do for it? Well, we replied, jaundice is not a disease, but a symptom, and may be caused by different states. Jaundice not a disease! said he. I tell you it is, and a hell of a disease, too. I don't see how you ever cured so many cases, while you know so little. And thus we ended.

But may we not forget that dental decay, in any of its varieties, is a symptom of a morbid state, and not a state, itself? And while it is our duty to head off the decay by timely and appropriate filling, is it not also incumbent on us to remove, if practicable, the morbid condition that causes the decay? And in order to do this, each case of decay that comes under our care should be closely observed and definitely studied, as this is a necessary step in finding out the nature and character of the diseased condition causing it. We take for granted that all agree that no teeth are so badly formed and developed that they go into decay in or with a perfectly healthy environment.

And when we have thus closely and carefully studied one case of decay, and have succeeded in removing or neutralizing the morbid condition causing it, it does not follow that this study and its corresponding treatment will, as a matter of course, answer for the next case. For a few moments let us think of caries just as we find it in the mouths of our patients from day to day. Forget, if we can, for a little, how the books describe it, and how the societies talk about it. No objection to books and societies at all; but, just now we want you and your patients.

Here is a case—look! the enamel is gone, and something is wrong with the subjacent tooth material. A cavity? Well, in a certain sense, yet *filled*, or nearly so. The filling is neither gold, tin, nor amalgam. On careful examination we find it gives evidence of recent organization, and conclude that really it is the organic matter of dentine which lately formed a corresponding part of the tooth. We find the lime salts are gone, and we know they must have been in solution before leaving, or they could not have got away without displacing this organic matter. Nobody believes that a flock of little microbugs crawled in among these organic fibers and came out again each carrying a lump of lime

salt, leaving the organic matter undisturbed because not fond of it. Nor does any one now believe that a grove of little micro-bushes grew there till their roots took up all the lime, leaving the organic matter as the residue of an exhausted soil. We are beyond all that. We are not discussing the germ theory. But germs, secretions, accidental contact, or what not, all agree that here is evidence of chemical action, and that in this case its force was mainly exerted on the lime salts. Possibly an acid, then? Yes, possibly, and if made by microbes, we care not; and if so, we care not if it is from their secretions, excretions, or putrefactions. Chemical action, though? Yes, we think so.

But see this case. Almost the only points of its resemblance to the one just considered is that it is in the mouth of a patient, and a tooth is involved. Here you have a cavity not filled with organic matter, but partly filled with *débris* from dentine and, perhaps, accidental foreign matter from the oral cavity. The destruction of dentine is complete as far as it goes. The destroyed tissue may not be all removed, and this may be because it is not in perfect solution, as then it would be carried out by the saliva and other liquids. There is, here too, definite proof of chemical action, but in the name of germs, microbes, acids, alkalies, secretions, excretions, and company, all must agree that the action is quite different from that shown in the first case considered here. And the science of chemistry will state positively that there must have been a different reagent, for "chemical action is definite in its nature." And pathology demands that we find out the reagent in each case, while therapeutics demands our prevention of its ravages.

We are all more or less worried by the almost uniform expressions, from pen and tongue, used as if dental decay were a unit. Nearly all refer to dental caries as if, when you have gained full knowledge of one case, you are master of the whole subject. But can any who carefully examine for themselves, believe that the two cases described above, are caused by the same reagent? that their immediate, or exciting causes are identical?

But here is a third case, selected, of course, to make our office clinic the more instructive. It is not more like either of the preceding cases than is consumption like yellow fever or small pox. There is a cavity, perhaps, but not much of the enamel is gone. The semi-transparency of the enamel shows that the den-

tine beneath it is dark colored, sometimes black. Neither dentine nor enamel is much broken down. It is plain the condition is not normal. The prognosis has been slow. Chemical analysis may show no decrease in the weight of lime salts—possibly there may be a slight increase, which increase some claim is due to the fact that it takes forty parts of sulphuric acid to replace twenty-two of carbonic acid. In this case the organic matter seems to be carbonized—turned into charcoal, instead of having been carried away in solution, as in the first case here considered, or disintegrated, as in the second case. This variety is much more likely to be superficial than either of the others, and, progressing less rapidly, is not so likely to destroy a tooth. The pulp is not exposed by this variety as often, in proportion, as by the others, partly because of its slowness in penetration, and partly because of its color soon attracts the attention of the patient.

Now, no one will claim that the portion affected by this kind of caries is in the normal chemical condition of tooth substance. And if thus changed, there has been chemical action, and it matters not whether microbes caused the action or not, but it is important to know.

Now we appeal to all who have practiced operative dentistry with their eyes open, that we have described three cases with which they are familiar. And we do not claim that they will find the caries as distinctly marked in all cases as above described. Far more than one of these varieties may be found in the same mouth, at the same time. It is not uncommon to find a broken down cavity of black decay, of long standing, with a newly formed one of white decay in the bottom of it. But such things will not confuse or mislead a careful observer.

The difference in color does not suggest the most noted points of difference in the varieties of decay. They are used for convenience.

The first variety here described is nearly colorless at first. It darkens by exposure, but never looks like "black" decay, and is never like it in other respects.

When we hear that some brother has artificially produced dental caries, we have a right to inquire which kind. And if answered, we may take courage that he may enlighten us on the others, but not forgetting to thank him for that already done. Let the research go on.

DISTRICT SOCIETIES.

THE committee appointed at the Ohio State Dental Society meeting, last October, is hard at work planning, mapping out, and generally arranging for the best division of the State for district societies. Preliminaries will soon be finished and organizations effected. It is earnestly desired that all dentists of each district consider the matter and be prepared, at the time of notification, to enter enthusiastically into the work of organization as it is only through combined and earnest effort that the project can be successfully carried out. When the great advantages of such societies are considered, every dentist ought to be heartily in favor of them and willing to do his share toward making them a success.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

TO REMOVE DEPOSITS FROM ARTIFICIAL DENTURES.—DR. W. H. MORGAN recommends ammonia as the best thing to dissolve away deposits on artificial dentures, claiming that soap does not meet the requirements.

DIRTY HANDS.—For cleaning hands, however dirty, first rub well in warm oil, then sprinkle with powdered borax, and wash off in the usual way.—*Dent. Record*.

TO FILL ROOTS.—DR. HOLLAND uses a flattened gold wire, beveled at the end going to the apex, which closes its opening and allows none of the filling material to pass through.—*Int. Jour.*

AFTER-PAIN OF EXTRACTION.—Aqua Chloroformi B. P. is excellent for above. I generally render it slightly tepid with hot water, and give it to the patient to use instead of plain water after extraction. The relief is instantaneous.—DR. R. E. JONES.

LIQUID ENAMEL FOR METAL.—Shellac 3 oz., resin $\frac{1}{2}$ oz., methylated spirit 1 pint. Cautiously heat to obtain a solution; bronze power $\frac{3}{4}$ pounds; when cold it is ready for use. Let the coat of varnish dry before the application of a second coat.

TAKING PLASTER IMPRESSIONS.—DR. C. J. GRAMM says: While forcing cup into position, let the patient change from the upright posture to one bending forward at an angle of 45° , allowing head to drop on the chest. The annoyance of "choking" will thus be avoided.—*Archives*.

LOBELIA AS A SURGICAL DRESSING.—DR. F. R. MILLARD cites several cases in which tincture of lobelia was applied on absorbent cotton as a compress after some minor surgical operations with directions to keep it constantly moist with the same liquid. In every instance the patient had rapid healing, with no pain or inconvenience.

PAINLESS LANCING.—We note the following from the *Archives*: Painless lancing of alveolar abscesses may be accomplished by the application of full strength carbolic acid and iodine, applied on a pellet of cotton. The crystallized acid, as it comes to us, should be liquified by the addition of a few drops of glycerine, say ten to fifteen drops to the ounce.

IMPRESSIONS OF DIFFICULT CASES.—DR. HOLLAND takes the impression of a very difficult case in two pieces, taking the inner portion first. Making grooves in this piece he oils and varnishes it, and then replaces in the mouth and takes the outer portion. Taking them separately, they are placed together again, out of the mouth, and the cast made as usual.—*Int. Dent. Jour.*

TO REPAIR A CRACKED METAL PLATE.—For repairing a crack in the plate, the crack should be well scraped and cleaned. Reliance should not be placed only on the solder that flows into and on either side of the crack; but a thin piece of pure gold or platinum should be burnished to fit closely over the crack and the solder made to flow into the crack and under and over this piece of plate to give strength to the fracture without unnecessary bulk.—DR. CHEUPEIN, *Dent. Office and Lab.*

A GOOD MOUTH WASH.—The following is very efficient in

treating sloughing surfaces about the mouth, and also good as a general mouth wash :

R Boro-Glyceride (Barff)
Tr. Krameriaë
Eau de Cologne, aa ʒj
Spts. Vini Rect. ad. ʒ viii

M. A teaspoonful to be added to a little water.—*Dent. Record.*

POLISHING CLASPS.—DR. THEO. CHEUPEIN gives his method in the *Office and Lab.*, as follows: Tie to the side of the work bench a hawk of gilling twine or thread about the size of the small finger. This is charged with fine pumice, or tripoli mixed with water. The end of the hawk is taken with the left hand and the hawk placed within the clasp. An up and down or sawing motion is given to the work which is held in the right hand, until the inside of the clasp is made smooth and polished by this manipulation.

ACTION OF PEROXIDE OF HYDROGEN.—DR. H. CLIFFORD thinks that the germs, apparently, are not killed by the ozone liberated, but are simply poisoned by the undecomposed peroxide just as they are by carbolic acid and sublimate. In other words, while ebullition, by its mechanical effects, is what makes the peroxide valuable as a cleanser, when it comes to germ-killing, with a solution of a given strength, the less bubbling the better, except in so far as it favors the access of undecomposed peroxide to germs protected by secretions.

MOUTH WASH FOR SLOUGHING SURFACES.—One I have found effectual is composed as follows :

R Acidi Tannici, ʒi
Potassæ Chloratis, ʒ ss
Tinct. Lavand. Co., ʒ iii
Aquæ ad. ʒ x

M. Ft. Garg. To be used twice or thrice a day.

N. B.—Touch the worst sloughs with a caustic, *e.g.*, Arg. Nit.—R. E. JONES, *Dent. Record.*

FITTING CROWNS.—DR. BRYAN in the *International*, gives the following method of preparing an opaque black wax for articu-

lating crowns: One part, by bulk, of lampblack and five parts white or yellow wax are melted together and rolled into sticks. The crown and root being ground to fit approximately, a small piece of this wax warmed is placed around the pin and the crown placed in position. The points requiring grinding will be very accurately indicated, the amount to be removed being estimated by "sounding" the wax with a fine point.

LOCAL ANÆSTHETIC.—DR. GEO. S. STAPLES sends the following to the *Archives*: Thoroughly dissolve twenty grains of cocaine in one ounce of ether (concentrated), and add one ounce of pure oil of peppermint; shake well before using. He has tried this preparation for about two years and finds that it gives better satisfaction than anything else he has ever used. In fact, for extracting sore teeth and fangs, where the inflammation is so great as to partially loosen them, he finds it almost entirely does away with the pain, when applied from six to twelve minutes.

REASONS FOR ENLARGING ROOT CANALS.—DR. W. H. POTTER in a paper read at Boston, says: There are two reasons for enlarging root canals: 1st. It is easier to fill enlarged canals than those of natural size; 2nd. The mechanical removal of the dentine adjacent to the pulp is the best means of disinfecting that tissue. It takes time to disinfect root canals by drugs, and we cannot always be sure that the drugs which we apply do the work. If, however, the infected substance is to a large extent removed bodily, the health of the remaining dentine is greatly promoted.—*Am. Journal*.

FILING BLOCK.—DR. J. B. VERNON uses a door bumper, such as are screwed to the mop board back of a door to protect the wall, screwing it to the top or front edge of the bench; at the suggestion of Dr. G. A. Bowman he glued over the end the half of a rubber ball. This block can be used on the side or the top of the bench to best suit the convenience of the workman.

The advantages of such a block are that it can be readily screwed to the bench and removed if necessary; the rubber covering helps to hold the plate in position, and deadens the noise when filing.—*Archives*.

THE USE OF MOUTH-WASHES.—DR. C. N. PEIRCE says: The

use of mouth-washes preserve the teeth and prevent the progress of decay. During the last two or three years I have had very good results from antiseptic washes, and I am satisfied that in persons between eight and twenty and in adult life, where there is a tendency, it modifies the progress of caries, and will protect our work and protect us. Years ago I used to speak slightly of mouth-washes. I thought powders were better than washes, but am convinced that if properly prepared, free from foreign substances, they are an advantage in the preservation of the teeth.—*Int. Dent. Jour.*

PULP EXPOSURE.—There are some cases where it is difficult to diagnose “Exposure of the Pulp.” But there is one test that has *never* failed me. When I find the dentos sensitive at any point within the cavity of decay, then I am certain that the pulp is *not* exposed. The pulp may have only a thin, soft tissue over it, like a drum-head. Of course this must be left intact, though gently cleansed with broad instruments, water, alcohol, camphor spirits and creosote. No pressure should be made on this “drum-head” in placing the filling, for the filling can be condensed in every other direction, until the cavity is sufficiently filled to form a *solid* bridge over the pulp.—HENRY S. CHASE in *Cosmos*.

SULPHO-PHENIC ACID AS A DISINFECTANT.—It is prepared by heating for a short time a mixture of twenty-five per cent. of sulpho-phenic acid and then letting the mixture cool. The liquid so obtained is readily soluble in water, while the ordinary phenic acid is only partly soluble. The examinations have shown that the microbes of malignant pustule are destroyed after remaining forty-eight hours, in a four per cent. solution, and after seventy-two hours, in a two per cent. solution. The same result is attainable by a two per cent. solution of phenic acid and creolin. Corrosive sublimate alone possesses more energetic action; but it, however, possesses the disadvantage of being dangerous and much more costly.

SUITABLE TEETH FOR IMPLANTATION.—In an article in *The Cosmos* DR. OTTOLENGUI says: I would suggest that all teeth be discarded which show that they have been the subjects of disease. A close examination with the lens will often demonstrate insipient exostosis, or absorption, in teeth which seem excellent specimens.

Never use a tooth with a calcified pulp or an abraded or eroded crown, or when there had been recession of the gum producing softening about the tooth-neck. Discard teeth which have dried and cracked, even though the crack be most minute. In a word, use as far as possible teeth which come into your possession within a week of extraction, and which are and appear to be healthy. I believe that to these extreme precautions I owe the fact that out of thirty cases I have had but one to cause suppuration during the healing process, and that I have not as yet had a loss.

ETCHING ON GLASS.—A clean glass plate is coated, without being warmed, with a solution of gum dammar in ether. The exact strength of the varnish is immaterial, though it should not be too weak. When the ether has evaporated, we can light up our smoke factory—the benzoline lamp—and hold the glass, film downward, in the flame, moving it about with a circular motion to prevent the heat being concentrated in one part, which would probably crack the plate. The centre of the plate consists of vapor of benzoline, which softens the dammar to such an extent that the soot is absorbed by the film as fast as it settles thereon. If this simple operation is properly done, a quarter or half-plate sized glass can be smoked to opacity and will have a smooth, bright surface which is in excellent condition for being etched, and is quite hard enough to form its own protection—that is, it does not require varnishing.—*Br. Jour. of Photo.*

TO HOLD LIGATURES IN PLACE.—DR. BONWILL says: To keep the ligature on the body of the tooth, I take a small hard-rubber corundum disk and make a groove on both the labial and palatal sides of the cuspid, deep enough for the ligature to rest securely. If necessary, I should cut the first or second temporary molars if a ligature could be gotten around the incisors to be turned into place.

By the use of gutta-percha warmed and placed on the palatal or lingual side of the tooth, around which a ligature is to be placed and carried slightly over the grinding surface to prevent the ligature from pressing down under the gum. This I use on permanent teeth.

Where the tooth cannot be cut or gutta-percha used, then gum sandarac varnish or a thin solution of oxyphosphate zinc placed on the tooth will prevent the ligature from slipping when

the tooth is being rotated, or to keep it from pressing up under the gum.—*Harris' Principles and Practice.*

CROWN DIE PLATE.—Instead of the “hubs” made for use with the S. S. White Co.’s die plate, I use large buckshot, or round bullets. I take a piece of gold plate of a suitable size, lay it over the proper die, and placing on the center of the plate the ball-end of a plugger handle, strike it lightly with a mallet so as to make a slight dent in the plate. In this dent I place the lead bullet for a molar, or the large buckshot for a bicuspid crown, and with a heavy hammer pound the lead flat. By this method I avoid all danger of pounding the fingers, as will sometimes occur in holding the “hub” in place on the plate. The ready purchase of the shot or bullets saves the cost of the hub-mold and the trouble of casting the hubs. Lead, however, is too soft to produce the soft definition of the cusps which the dies are capable of, and therefore either the hub-metal, or soft solder cast in a bullet-mold, will be found preferable to the buckshot or bullets. In this manner any one may quickly strike up the crown cusps in smooth and beautiful distinctness of definition.—L. M. MATHEWS in *Cosmos*.

ABOUT SOCIETIES.—In a letter to the *Dental Review* DR. OTTOLENGUI among other things says: “What we need is, not admission to the meetings of medical men, and a right to share in their councils, but rather, such a proportion of medical knowledge as would make us less mechanical in our limitations, and more able to diagnose and treat diseases which, appearing in the mouth and within our allotted sphere of action, nevertheless are really but expressions of constitutional disturbance elsewhere. In a nutshell, the necessity is for more knowledge, not more societies.”

Further in regard to the manner in which our societies are conducted, he says: “We should sit in council as a body of scientists, not as a social body convened for pleasure. That is the one thing in my opinion which most militates against the usefulness of our association meetings. The majority seem always in a hurry. Adjournment, whenever suggested, is always vociferously agreed to, and even before the motion is carried, the men are on the move to escape. This is not only unscientific; it is indecorous, and is the outcome of this one fact: We are ego-tists. We go to teach, and not to learn, the result being that we neither teach nor learn.”

A BATCH OF HINTS.—R. D., in the *Dom. Dent. Jour.*, gives the following hints:

Taking a Bite.—Trim your wax, if for upper or lower set, to the contour and length. I once thought that sufficient, but now I get accuracy itself by taking two teeth, if plain teeth, or a couple of the blocks, if gum teeth, cutting away the wax exactly as it has finally to be cut away, to let in the teeth, and then simply set these samples to the exact length and prominence they are to remain.

Lining Teeth.—In lining bicuspid and molars for gold plates, use heavier backing than for front teeth, as these teeth stand a greater strain. Also add a bit of plate—thus doubling the lining at the bottom next to the plate.

Before you extract for a set, take an impression of the natural teeth, and have it in your laboratory beside the substitute.

Arsenic.—Before applying for the destruction of a pulp, anæsthetize the head of the latter by holding in contact a pellet of cotton, dipped in hot, carbolic acid. Most of dentists use too much arsenic. If the decomposed dentine is properly removed and the pulp fully exposed, a small pin's head size of arsenic is sufficient.

Facial Fistula.—When a fistula has opened on the outside of the face, on account of poulticing or from any other cause, do not extract the offending tooth until you make an artificial fistula inside the mouth. The outside fistula will heal by granulation. If you extract the tooth before doing so, the tissue certainly will be greatly depressed, and an uglier scar result.

Over-Medication.—In treating alveolar abscesses, we may have too much of a good thing. In pumping carbolic acid, peroxide of hydrogen, bichloride of mercury, etc., into alveolar abscesses, periods of rest ought to be allowed, or only warm water substituted.

WHEN TO USE CHLOROFORM.—DR. BUXTON points out that even admitting greater danger from chloroform, its use is indicated in the following circumstances:

- a. In protracted operations about the mouth, jaws, nose, or pharynx, which necessitate the mouth and nose being uncovered.
- b. All operations needing the employment of the actual cautery, or lighted candles, lamps, etc., in the vicinity of the

mouth; ether being highly inflammable, and when mixed with air, detonating, so that the incautious bringing of the apparatus near a light may lead to grave consequences.

c. Persons who are suffering from bronchitis, and those liable to that complaint; the emphysematous (if the condition be very pronounced) and, as a rule, asthmatics bear ether badly, since it creates cough, and may clog the bronchial tubes with a quantity of excessive secretion.

d. In renal disease, when extensive, ether is said to induce suppression of urine; so that if given at all in these cases, it should be with the utmost caution.

e. The vascular excitement to which ether gives rise, contraindicates its use for persons whose arteries are presumably brittle, etc.

f. In infants and very young children.

g. As ether always provokes coughing and rapid breathing, it should not be used when these are prejudicial to the patient or to the success of the operation.

h. The presence of brain tumors, intestinal obstruction, and cancerous tumors is by some considered contra-indicatory of ether. To these the *Chronicle* adds two other large groups of conditions, viz.: 1st, all cases of brain surgery; 2d, where the circumstances of the patient or the requirements of the operation are such as to demand the securing of perfect rest by the free use of opiates, ether must be avoided on account of its action on the kidneys.—*N. Y. Med. Record*.

PREVENTING AND CORRECTING IRREGULARITY.—The following valuable suggestions are given by DR. W. G. A. BONWILL, in an article in the new edition of *Harris' Principles and Practice of Dentistry*. To commence as soon as possible after the seventh year, or as soon as there is evidence of decided irregularity. To watch all children's teeth from the third year and determine by the exploring needle, every three months, the exact position of the coming permanent teeth as soon as the first permanent molar has appeared.

To preserve, by early treatment, the first and second molars—temporary—even to the treatment of their pulps. To be sure the first permanent molars are preserved without loss of pulp, and to allow nothing to interfere with their full and free development

in the arches, as upon these teeth more than upon any others are due the irregularity, from coming too far forward in the arch, from decay of proximal surfaces of temporary molars, or from the tardy eruption of the permanent incisors. I endeavor to keep this tooth as far back toward the ramus as possible.

That all apparatus should be simple and, if possible, firmly fixed, so that the patient can have no control over it; and then see the case every few days. That constant and uninterrupted pressure is preferable. The antagonism of the opposite jaw will always be exerting a force to make them move back and forth in their sockets, and this makes sufficient intermittent pressure.

That while one plan, without some change in each case, will not do, yet the infinite number of apparatus is a greater nuisance to patient and operator.

That without the combined assistance of parent and child, better not commence. That nothing shall be withheld from the child or parent, but every detail, every risk, and the amount of patient endurance needed, the long time, and, when all is corrected, to allow of stay plates, that the work gained may be retained.

Not least of all the factors, you must place such valuation on your services as will insure your interest and will drive the parties concerned up to their duties.

Societies.

"Wherewith one may edify another."

MEETINGS.

Kansas State Dental Association meets April 30, 1889, at Topeka.

Iowa State Dental Society meets first Tuesday in May, 1889, at Des Moines.

Illinois State Dental Society meets second Tuesday in May, 1889, at Quincy.

Northern Ohio Dental Association meets at Cleveland on the second Tuesday in May, 1889.

Georgia State Dental Society meets second Tuesday in May, 1889, at Tybee.

The Dental Society of the State of New York meets on the second Wednesday in May at Albany.

Mississippi State Dental Association meets third Tuesday in May, 1889, at Vicksburg.

Nebraska State Dental Society meets third Tuesday in May, 1889, at Beatrice.

Michigan State Dental Association meets June 4, 1889, at Grand Rapids.

NORTHERN OHIO DENTAL ASSOCIATION.

THE thirtieth annual meeting will be held in Cleveland, Ohio, Tuesday, May 14, 1889, and continue its sessions three days.

The following papers and clinics will be given:

1. Dental Electricity.—Paper by Dr. F. S. Whitslar, Youngstown; opened by Drs. J. E. Robinson, Cleveland, and S. A. Pancost, Ashtabula.

2. Modern Devices Adapted to the Wants of the Operator.—Paper by Dr. J. W. Lyder, Akron; opened by Drs. C. R. Butler, Cleveland, and W. H. Whitslar, Youngstown.

3. Amalgam, its Uses and Abuses.—Paper by Dr. J. R. Owens, Cleveland; opened by Drs. W. H. Fowler, Painesville, and J. H. Siddall, Oberlin.

4. Dissemination of Knowledge of Dental Hygiene to the Masses.—Paper by Dr. L. P. Bethel, Toledo; opened by Drs. Geo. H. Wilson, Painesville, and Chas. Buffett, Cleveland.

CLINICS.

1. Treatment of a case of pyorrhœa alveolaris, by Dr. J. R. Bell, Cleveland.

2. Filling of a buccal cavity with tin, by Dr. H. H. Newton, Cleveland.

3. Filling of a lower bicuspid post. aprox. with gold and using matrix, by Dr. J. E. Robinson, Cleveland.

A cordial invitation is extended to all the profession.

S. B. DEWEY, *Cor. Sec'y.*

NEBRASKA STATE DENTAL SOCIETY.

THE next meeting of the Nebraska State Dental Society will be held at Beatrice on the third Tuesday in May. From the

present outlook this promises to be the best meeting in the history of the State society, several men of prominence from other States will be with us. J. J. WILLEY, *Cor. Sec'y.*

OHIO COLLEGE OF DENTAL SURGERY.

COMMENCEMENT exercises were held at College Hall, Monday, March 4, 1889. The graduating class numbered sixty-five; number of matriculates during the year 150.

Three gold medals were awarded. The first, for the best general examinations, to Ralph R. Braxtan, of Loogootee, Ind. T. F. Hover and A. R. Bryte received honorable mention. The second prize, for excellence in the operative department, was won by E. G. Snodgrass, of Sydney, Ohio, while F. L. Cary, A. R. Bryte, R. L. Gray, E. S. Snyder, and J. R. King received special mention. The third prize was for the best specimen of artificial dentistry, and was captured by G. W. Gandee, of Belpre, Ohio. A. R. Bryte, E. Reynolds, and C. H. Griffin were given honorable mention.

The graduates were as follows:

R. T. Taylor, H. C. Sexton, W. T. Withofft, H. C. Crigler, A. J. Weaver, R. L. Gray, D. W. Barrow, A. M. Bush, W. H. Gillett, W. T. McLean, H. Jenkins, F. L. Cary, L. W. Watts, A. J. Holmes, G. E. Mann, C. C. Ritter, J. T. Bristow, T. F. Hover, P. S. Bollinger, F. B. Pittwood, A. E. Sprague, W. C. Lupfer, W. A. Williams, H. L. Madison, E. H. Moss, W. T. Born, W. O. Huelick, W. H. Sedgwick, jr., H. M. Patton, B. C. Chandler, J. M. Cunningham, E. F. Keran, H. F. Thomson, F. B. Taylor, Mrs. Lucy B. Montz, G. W. Gaudee, H. E. Hatton, Wm. Dickey, D. H. Sullivan, F. A. Ayer, J. E. Rothenbush, J. R. King, N. Kelly, W. H. Cole, F. W. Doran, B. F. Erb, E. S. Snyder, C. Ritz, G. B. Wortman, R. H. Hogden, G. B. Cooper, A. R. Bryte, R. R. Braxtan, T. O. Humphreys, M. M. Haas, C. H. Griffin, H. C. Blethrow, O. L. Beard, J. W. Sparks, E. G. Snodgrass, E. C. Maxwell, W. H. Upton, A. N. Copsey, E. Reynolds, C. O. Carr.

THE Alumni Association of the Ohio College of Dental Surgery in parlor A at the Burnet House last night elected G. Molyneaux, D.D.S., President; H. C. Matlack, D.D.S., Vice-President; H. T. Smith, D.D.S., Secretary; H. L. Moore, D.D.S., Treasurer.

INDIANA DENTAL COLLEGE.

COMMENCEMENT exercises of the Indiana Dental College were held Wednesday, March 6, 1889.

There were fifty-one matriculates during the year, but two juniors failed to pass. The graduating class numbering seventeen was as follows:

Willard W. Gates, Ind.; M. F. Ault, Ind.; Harry W. Cole, Ind.; Waldo E. Callane, Ind.; Peter S. Bower, Ind.; Ward E. Bullard, Ind.; W. Ellis Wiessell, Ind.; John C. Walker, Kan.; Charles S. Hardy, Canada; Frederick H. Reiss, Ills.; Bion Moss, Wis.; Charles K. Raber, Wis.; William Finn, Wis.; Sidney W. Curtis, West Va.; George B. Martin, Mich.; Robert I. Blake-man, Ky.; Moses P. Niswonger, Ohio.

POSTPONEMENT.

MICHIGAN STATE DENTAL SOCIETY.

THE regular annual meeting of this society will not be held until June 4, 5, 6. The meeting will be at Grand Rapids as heretofore announced.

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

AT the meeting held in Cincinnati, March 6, 7, 8, 1889, the officers elected for the year were: President, J. R. Callahan, Hillsboro, O.; 1st Vice-President, M. H. Fletcher, Cincinnati, O.; 2nd Vice-President, L. E. Custer, Dayton, O.; Rec. Secretary, H. T. Smith, Cincinnati, O.; Cor. Secretary, W. D. Phillips, Cincinnati, O.; Treasurer, F. A. Hunter, Cincinnati, O. Executive Committee.—M. H. Fletcher, L. E. Custer, W. H. Sillito.

THE MAD RIVER VALLEY DENTAL SOCIETY.

It is expected will hold its usual annual meeting at Dayton in May and organize into a District Society, auxillary to the Ohio State Dental Society. Particulars in next number.

BORN

December 17, 1888, "The Dental Society of Grand Rapids, Mich.," with an able corps of officers, as follows: Dr. C. H. Dyer, President; Dr. L. F. Owen, Vice-President; Dr. J. Ward House, Secretary; Dr. W. A. Dorland, Treasurer. Executive Committee: Drs. E. S. Holmes, J. C. Parker, C. H. Dyer, L. F. Owen, J. Ward House.

Meetings are held once a month, and the membership at present numbers twenty. The dentists of Grand Rapids have thus banded themselves together for mutual benefit, socially and intellectually, and that they may, by united effort, make it more pleasant for their professional brethren of Michigan and neighboring States at the time of the State meeting to be held in their city in the near future.

THE DENTAL PROTECTIVE ASSOCIATION.

At the regular meeting of the Chicago Dental Society, Tuesday evening, March 5, 1889, the following was adopted:

Resolved, That it is the sentiment of this society, that it would be to the interest of the members of the dental profession to become members of the Dental Protective Association of the United States.

LOUIS OTTOFY, *Cor. Sec'y.*

Books and Pamphlets.

OPERATIVE DENTISTRY. By THOMAS FILLEBROWN, M.D., D.M.D., Professor of Operative Dentistry in the Dental School of Harvard University; member of the American Dental Association, American Academy of Dental Science, etc. 230 illustrations, pp. 269. Philadelphia: P. Blakiston, Son & Co., Publishers. 1889. Cloth, price \$2.50. Brown, Eager & Hull, Toledo, O.

This is one of the series of text-books, on various subjects pertaining to dentistry, written by invitation of the National Association of Dental Faculties and designed as the standard text-books for use in the various dental colleges throughout the United States.

The author states that for many years he has felt that there was need of

a text-book on Operative Dentistry, that should be confined more especially to the descriptions of the manual operations required for the preservation of the natural teeth, and that this volume is the result of that feeling. He also says: "The effort has been made to avoid unnecessary detail and to leave out all that could be dispensed with consistently, with clearness. Hence history has not been attempted, and only enough of definitions, etiology and symptoms of diseases given to make clear the description of the operation to be performed. While intending to include the principles involved in all ways of performing each operation, repetitions under the heads of different methods have been avoided, and authors' names generally omitted from the text.

The work is not intended as a substitute for larger works, but as an epitome of the practical application of the principles discussed at length in more extensive volumes, and to these the student is referred for exhaustive discussion."

The work is extremely practical, brief, concise, and includes the best methods up to the present time; Crown and Bridge-work being especially treated at length. The numerous illustrations add materially to the value of the book, and although not as complete in all the departments as might be wished it is just the kind of a work needed as a text-book, and we predict a large sale to practitioners and their students as well as those in attendance at the various colleges.

BROWN'S MEDICAL DIAGNOSIS. A Manual of Clinical Methods. By J. GRAHAM BROWN, M.D., Fellow of the Royal College of Physicians of Edinburgh, Late Senior President of the Royal Medical Society of Edinburgh. Second edition illustrated. One large 8vo vol., 285 pages, handsomely bound, \$2.75. E. B. Treat, Publisher, 771 Broadway, New York.

The first step towards the successful practice of medicine is skill, rapidity and accuracy in diagnosis. Yet the practitioner frequently is found with a well selected library with the exception of works on diagnosis. The plan of this author is to take up the various organs and anatomical portions of the body and diagnose the disease to which each is liable. This is done in a singularly clear and systematic manner. Bacteriology receives its share of attention. The work is the embodiment of the thorough and conscientious labors of one who has won a just celebrity in his department of medicine. Its contents are summarized as follows:

THE GENERAL ASPECT, Condition and Circumstances of a Patient. Preliminary Inquiries. ALIMENTARY SYSTEM.—Objective—Subjective—Excretory Phenomena. EXAMINATION OF THE ABDOMEN.—Its Palpitation and Percussion. HÆMOPOIETIC SYSTEM.—Lymphatic Vessels and Glands.—Examination of the Blood. CIRCULATORY SYSTEM.—Subjective Phenomena—Palpation—Percussion—Auscultation of the Heart—Examination of the Arteries, Capillaries, and Veins. RESPIRATORY SYSTEM.—Subjective Phenomena—Examination of Nares and Larynx—Palpation—Percussion of the Chest—Auscultation—Respiration. INTEGUMENTARY SYSTEM.—Subjective and Objective Symptoms—Eruptions. URINARY SYSTEM.—Subjective Symptoms—Normal Constituents of Urine—Abnormal Constituents of Urine—Urinary Sediments. REPRODUCTIVE SYSTEM.—The Female Reproductive Organs and Functions—Physical Examination. NERVOUS SYSTEM.—Sensory—Motor—Trophic—Cer-

ebrial and Mental Functions—Condition of Cranium and Spine. LOCOMOTORY SYSTEM.—Bones—Joints—Muscles.

DISEASES OF THE HEART. By ALONZO CLARK, M.D., LL.D. Emeritus Professor of the Principles and Practice of Medicine, etc., College of Physicians and Surgeons, New York.

This book is the crowning effort of its distinguished author. Few, if any, in the medical profession have attained to higher eminence as a skillful diagnostician. Filling for many years the chair of Professor of the Principles and Practice of Medicine in the College of Physicians and Surgeons, New York; and standing in the front rank, if not *the first* of "Consulting Physicians" in his specialty, he enjoyed unsurpassed opportunities from personal observation, original investigation and familiarity with the literature of the subject, of becoming the ablest expert of his time.

The information gathered in this volume embodies the substance of his teachings and lectures on "Diseases of the Heart" given to his students. Nothing is omitted which would tend to give a clear exposition of the views which he inculcated as teacher.

The volume cannot therefore fail of being of great value to practitioners, as it contains the results of a singularly calm and judicious mind of one who had long and preëminent experience, and whose ripened harvest of thought is gathered into this sheaf, which ought to find an honored place in the medical granary among other distinguished sheaves.

It gives emphasis and increased interest to this book to know, that it is the only portion of Dr. Clark's many and valuable articles, lectures, teachings, and medical examinations given to the Profession in permanent published form. One octavo volume, 251 pages. Price, \$2.75. New York: E. B. Treat, Publisher, 771 Broadway.

ALDEN'S MANIFOLD CYCLOPEDIA.—Open at random at which page you will, or look for almost any subject you choose, and concise, accurate and valuable information meets the eye. With each new volume one's surprise at the available knowledge contained in these handy books is increased. There can be no doubt that the completed set will form one of the standard works of the generation. The small handy volumes are so much more convenient for consultation than the big unwieldy octavos or quartos of rival cyclopedias that one naturally refers to them much more often, and is gratified to find that except in rare cases the information afforded is fully as satisfactory as found in Appleton's, Johnson's, Chambers or the Britannica. The price is low beyond all precedent, placing it within popular reach—50 cents a volume for cloth binding, 65 cents for half Morocco; postage 10 cents. John B. Alden, Publisher, 393 Pearl St., New York.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH. By CARL HEITZMAN, M.D., and C. F. W. BÖDECKER, D.D.S., M.D.

These valuable contributions are reprinted from the *Independent Practitioner* and form a neat pamphlet of 98 pages. The earnest and superior scien-

tific work of these two gentlemen is so well known that comments are unnecessary. We, however, advise all who have not read these articles to do so.

ETIOLOGY OF CONSTITUTIONAL IRREGULARITIES OF THE TEETH.

By EUGENE S. TALBOT, M.D., D.D.S., Chicago. Reprint from *Dental Cosmos*.

Dr. Talbot has won a deserved reputation writing upon this subject, and these papers bound together make a valuable addition to the dental literature.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, held at Louisville, Ky., in joint meeting with the Southern Dental Association, August, 1888.

This volume of the transactions is one of special interest and value containing an unusual number of papers and of a high order. The work covers 286 pages, and is neatly printed, and bound in cloth. The general make up and appearance reflect great credit upon the Publication Committee, Drs. Cushing, Harlan and E. T. Darby, and upon the publishers, S. S. White Dental Manufacturing Co.

THE DOMINION DENTAL JOURNAL is a neatly gotten up quarterly, edited by Dr. W. Geo. Beers, and published at Montreal. From the appearance of the first issue we believe it will be a Journal meeting the requirements of the progressive dentist, and we extend our best wishes of success to its publishers.

HOW TO BE SUCCESSFUL ON THE ROAD AS A COMMERCIAL TRAVELER. By an Old Drummer. 96 pp., paper, price 20c. New York: Fowler & Wells Co., 775 Broadway.

In this volume, that one can carry in the pocket, we have a condensation of the experience and observation of an old and successful commercial traveler, he puts a deal of common sense into his advice, and shows how a good knowledge of human nature is the potent instrumentality in dealing with business men and the road to success. In this connection he naturally dwells upon the influence of personal appearance, dress, language, manners, and tact generally, and presents other matters which can all be turned into gain in the hands of a clever man who wishes to sell goods.

BOOKS RECEIVED.

DENTAL SCIENCE—QUESTIONS AND ANSWERS. By L. C. Ingersoll, A.M., D.D.S. Second edition. 1889. Philadelphia: Wilmington Dental Manufacturing Co., Publishers.

HARRIS' PRINCIPLES AND PRACTICE. By F. J. S. Gorgas, D.D.S., M.D. 12th edition. Philadelphia: P. Blakiston, Son & Co., Publishers.

INSOMNIA AND OTHER DISORDERS OF SLEEP. By Henry M. Lyman, A.M., M.D. Chicago: W. T. Keener, Publisher.

INDIGESTION AND BILIOUSNESS. By J. Milner Fothergill, M.D. Chicago: W. T. Keener, Publisher.

PAMPHLETS.

A DEFENCE OF ELECTROLYSIS IN URETHRAL STRICTURES. By Robert Newman, M.D., New York. Reprint from *Medical Register*. 1889. Philadelphia: Records McMullin & Co., Publishers.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Our Aftermath.

TRUTH is as indifferent to public opinion as public opinion is to truth.

CHICAGO STILL AHEAD.—“When baby Julia Baker arrived in town a day or two ago, weighing only 6½ pounds, she was the possessor of six upper front teeth and four lower—ten in all.”—*Daily Paper*.

STOCKHOLDERS OHIO COLLEGE OF DENTAL SURGERY met Tuesday, March 5, 1889, in Cincinnati, and reelected the three outgoing trustees, Drs. F. A. Hunter, H. A. Smith, and J. I. Taylor. Dr. C. I. Keely was elected to fill the vacancy caused by the death of his father, the late Dr. Geo. W. Keely.

THE MISSISSIPPI VALLEY MEETING.—The Dental Protective Association represented by Dr. J. N. Crouse of Chicago, gained many new members and \$10 pieces. We would advise all dentists to unite with it before it is too late.

DR. H. J. MCKELLOPS, of St. Louis, who was master of clinics didn't seem pleased with the operations performed. He was very emphatic in speaking of those who had agreed to give clinics, got their names printed on the program and then stayed away.

DR. C. H. ROSENTHAL, of Cincinnati, exhibited an excellent device for removing crown and bridge-work. It will soon be on the market.

DR. D. W. CLANCEY, of Cincinnati, showed a very simple and efficient shield for engine disks and corundum wheels. It is held on the nose of the hand-piece by a spiral spring.

DR. WM. CONRAD of *The Archives*, St. Louis, demonstrated that he cannot be stampeded when he has the floor. Pity there are not more Conrads in our societies.

DR. L. E. CUSTER, of Dayton, read a paper without prefacing it with the usual remark about having prepared it hastily, etc., as did all the others. A writer should not agree to present a paper unless he can do it in proper shape.

AMALGAM was 'cussed by Dr. McKellops who said the association ought to be ashamed to have the idea go out that it endorsed the accursed stuff. The others discussed it in the usual way—some for and some “forninst” it.

PYORRHOEA ALVEOLARIS came in for its annual airing. It is, and it is not, local—it is, and it is not, constitutional. In diagnosis, now you see it and now you don't. If you can cure, it is inflammation caused by calcific deposits. If you can't cure it, it is pyorrhœa alveolaris.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

PRACTICAL APPLICATION OF BRIDGE-WORK.

BY EVERETT M. COOK, D.D.S., TOLEDO, O.

WHEN asked by one of the editors of this JOURNAL to contribute an article on bridge-work, the thought came to me that possibly I might, by a careful description of my method of constructing and attaching bridges, help some one to a better comprehension of bridge-work, and the great fields of usefulness this much abused method of restoring lost teeth opens to the profession.

I said *my method* of constructing and attaching bridges. I do not claim to be the originator of this method I am about to describe, for that honor belongs to E. Parmlly Brown, of Flushing, N. Y., who has given it the name of all-porcelain bridge-work. Dr. Brown has spent a vast amount of time and thought experimenting with porcelain and other materials, both in this country and abroad, for which the dental profession owe him a debt of gratitude that will be more fully realized as it learns by experience the great results he has accomplished in revolutionizing the methods of the construction and attachment of dental bridges.

In the consideration of this subject, we have, *first*, the foundation, or the teeth that support the bridge. *Second*, a material adapted to the requirements of constructing a bridge. *Third*, the attachment of the completed piece. I believe many of the failures we see are due to a lack of proper judgment of the operator, in attaching his bridge to the teeth in such a manner that the attachment causes a constant irritation, and consequent failure; or, that the teeth were not in a healthy condition at the time of the operation. I am willing to go on record for the statement that I would not hesitate to cut a cavity in a perfectly sound living tooth and destroy the pulp in that tooth in my own mouth (or have it done), if I needed such a tooth to support a bridge. I believe a thoroughly calcified tooth will do just as good service without the pulp as it will with it. We must treat that pulp canal scientifically, and be *positive* that the treatment is thorough. It is true there are a few cases where it is impossible to go to the end of the root of a tooth with the smallest Gates-Glidden nerve canal reamers and nerve broaches. Such a tooth I would not consider a good support for a bridge, and would either extract it, adding one more tooth to the bridge, or go through it into the next tooth. As I said, such cases are very rare, and I have yet to find such an one when preparing teeth to support a bridge.

There is one membrane which we must not irritate or destroy, and which must be in a perfectly healthy condition or our work will be a failure; that membrane is the pericementum, the covering of the root, the membrane which holds the tooth in the socket, by which it is attached to the alveolar process, and the death of which causes the tooth to become a foreign body which will be thrown off by the economy.

Now we have for our foundation, teeth with roots well filled, and a thoroughly healthy pericementum. For the body of the bridge we must select a material that we can crowd tightly against the gum, that the gum will close around and remain in as healthy a condition as around the natural teeth. Metal will not accomplish this, it makes no difference how nicely it is polished, for the gum will not take kindly to it and sooner or later it becomes an irritant. For this reason we find men constructing bridges with so-called self cleansing spaces between the gum and the bridge, causing discomfort to the patient in numerous ways. I do not believe such spaces should be left in the mouth, and I

want a material easily adapted to fit the gum, that is as cleanly as the natural teeth, and one that closely imitates nature in appearance. Porcelain fills all these requirements, and when properly combined with metal, to give the necessary strength, it is a perfect material.

We now have to consider the attachment of our piece to the supporting teeth. A crown fitted to the tooth makes a good attachment, but is unsightly, especially on the anterior teeth. I go into the approximal surface of my support, letting the bar run well up into the root canal, filling around it with cement, then cutting away, leaving only enough to hold the piece, while I replace the cement with gold, making mechanically the strongest possible connection and by far the best in appearance, as the tooth to which the bridge is attached shows only an ordinary gold filling instead of a crown covered entirely with gold. We now have our foundation perfect. We have a good material from which to construct the bridge, and the best possible connection between the piece and foundation. We will now take a simple case as an illustration.

A patient comes to me who has lost the four superior incisors. We often find cavities in the approximal surfaces of the cuspids, and if there are none I make small openings in the anterior approximal surfaces, going into the tooth only far enough to allow a very small dressing of arsenic, which I place in the cavity and cover with cement, leaving it for twenty-four hours, when I am able to enlarge the cavity, often going into the pulp chamber without causing my patient any pain. I now apply a dressing of oil of cloves, iodoform, and arsenic, again sealing it with cement and leaving for twenty-four hours. I then remove the nerve without pain by working a fine new broach up the canal as far as possible, and giving it a few turns when the dead pulp comes away intact. Wash the canal with peroxide of hydrogen, then with alcohol, and leave a dressing of oil of cloves and wood creosote, half of each, in the cavity for fifteen minutes, dry the cavity thoroughly with bibulous paper and hot air, filling with Hill's stopping or the red gutta percha, at the same sitting. If possible I then leave the case for ten days, although in several instances have put the piece in immediately. The next step is to fit the bar to which the teeth are to be attached. This bar is iridio-platinum square wire No. 15 U. S. standard gauge, furnished for this

purpose by the S. S. White Dental M'fg Co. Roll it down to about two-thirds the original thickness, which gives greater strength in the direction of the strain upon it. After enlarging cavities in the cuspids so they will admit the bar well up in the roots, make one point of it about the shape of a short Logan crown pin, bend it nearly at a right angle, measure, and then bend the other end. In this way we have the bar entering the root canal of each cuspid and spanning the space between.

Having selected four plain plate teeth, I prefer the straight pin teeth of S. S. White manufacture as they are less liable to etch in baking than any I have ever tried, as I think they also have greater strength than cross-pin, drill a hole through the bar the size of the tooth-pin, passing one pin through this hole, letting the other rest against the bar either above or below it as the case may require. With a pair of pliers close the pins together around the bar, which holds the teeth firmly in position. Care must be taken to fit the bar so the occlusion can be easily secured. Lay four strips of iridio-platinum plate, No. 26, U. S. gauge and one-fourth the width of the tooth, against the bar and the centre of the cutting edge of the tooth, letting the plate project a little above it. Wax to keep in place, invest and solder the pins of the teeth and the narrow strip of plate to the bar with pure gold. These four pieces of plate are to support the metal that forms the masticating surface of the piece. Put the piece on the cast, to ascertain the distance between the neck of the teeth and the gum, in order to add the necessary amount of porcelain. I use Allen's continuous-gum body, mixing as for continuous gum work, building it around the bar and the back of the teeth, to restore as nearly as possible the contour of the natural teeth, being careful to add enough to allow for shrinkage in baking, and still leave the piece long enough to displace the gum a trifle the whole distance between the cuspids when the piece is put in place. If too much body is added it is easy to grind it away, while if too little is added it will be necessary to add more and bake the piece again, for it is one of the fundamental principles of this method to bring the porcelain in perfect contact with the gum, that there may be no possible place for food or secretions to lodge. If the teeth have been recently extracted and the alveolar ridge is prominent, it will require only a small amount of porcelain, just

enough to cover the bar, making the surface on the tooth a trifle convex where it comes in contact with the gum. On the other hand if the patient has worn a plate for a long time, the alveolar border being much absorbed, the teeth and lost tissue may be restored by building on enough body to restore the contour and carry the lip to its original position, after which flow gum enamel over the piece to the neck of the teeth, and we have a beautiful imitation of the lost parts. In baking, any of the continuous-gum furnaces may be used. I prefer the Tees' as it gives the necessary amount of heat with little labor. The coke fire is inexpensive, easy to control, and does not cool down too rapidly. I get the best result by leaving the piece in until the furnace is cold. On putting the piece on the slide it is necessary to support it so it will not warp. This is best accomplished by hanging between standards of platinum wire, blocking with small pieces of broken slab or muffle. In the case we are describing I would drill holes in pieces of fire brick large enough to admit the ends of the bar, allowing the piece to hang between the pieces of fire-brick. It is desirable to bake with the cutting edges of the teeth up, as the convex surface of the piece, where it comes in contact with the gum, takes a more decided form when baked in this position. For a beginner the baking is the most difficult part of the operation, but a little practice will make this easy, and he will soon be able to manipulate porcelain as easily as gold or rubber. Should you fail to reach the desired result the first time do not condemn the method. Remember "our failures are but stepping stones to success." After the piece comes from the furnace, try it in the mouth, grinding away any part that prevents it from going to place, leaving a small space between it and the occluding teeth.

Dr. Brown does not cover the occluding surface with gold, but relies on the porcelain for strength to withstand the pressure of mastication. I have had failures with this method and would not depend upon the strength of porcelain alone for this purpose.

If bits of bone or seeds are bitten with a grinding motion, it is liable to chip a tooth. I take a piece of pure gold, No. 28 gauge, cut to fit the piece, extend it over the cutting edges of the teeth, make notches, to allow its passage between the pieces of narrow iridio-platinum plate which project above the cutting edge of the teeth, solder to these pieces of plate, and burnish it

tightly against the porcelain, which is easily done, the gold being very pliable.

It is necessary to use only a small amount of solder in tacking the gold to these pieces of plate, for it will be impossible to burnish it to fit if there is much solder. Now flow over the surface of the pure gold a quantity of twenty karat gold solder being sure to solder it to the opposite ends of the strips of plate. The solder stiffens the gold so that when coming in contact with the occluding teeth, or any hard substance, the pressure is distributed over the entire piece. Dress off the gold so that it comes flush with the cutting edges of the teeth, but not to cover them, trim the gold so as to form a continuous surface with the porcelain on the lingual surface, polish and you have the piece complete and ready for the final attachment. In doing this I always put on the rubber-dam, exposing at least the cuspids and first bicuspid on either side, extending it across the space to be bridged. In ligating the cuspids tie two knots in the silk, one directly on the other, placing the knot at the lingual surface of the tooth. This knot enables us to carry the dam well up on the neck of the tooth, holding it firmly in position. This little knot will often be found more useful than the clamp to hold the dam in position in ordinary filling, with less pain to the patient. Place the piece in position, and observe the amount of space between the bar and the margin of the cavity. Remove and bevel the margins of the cavities well, letting them extend a little under the free margin of the gum, make retaining grooves and fill solidly with gold up to where the bar of the bridge rests upon it, and if too high, cut it away. This portion of the filling can be better done now than after the piece is in position. If well done this filling will thoroughly protect the margin of the cavity, put in under the most favorable circumstances, and we expect it to preserve the tooth at this point.

Now mix a small quantity of oxyphosphate and fill the canals partly full, insert the bridge, pressing it firmly to place and holding it there until the cement, which is packed closely about the bar, becomes hard. Cut away the cement in one canal as far up as possible and fill solidly with gold, using No. 5 cohesive with the electric mallet, restoring the contour of the tooth. Treat the other in the same way and we have a piece restoring the contour of the arch, and alveolus if necessary, with no gold

visible from the front, except the fillings in the cuspids, with a metal masticating surface strong enough to withstand any pressure brought upon it, and a smooth, clean material in contact with the tissues of the mouth, upon which no bacteria can breed, and with no self-cleansing spaces which are never clean. A beautiful, durable and cleanly piece of bridge-work is a comfort to your patient and a credit to whoever inserts it.

The cuts represent a practical case which I have recently inserted in the mouth of a dentist. It is a difficult case as the patient has worn a partial plate for twenty years, the alveolar ridge being very much absorbed. The teeth are necessarily large and long making a difficult piece to bake without warping. The method of construction differs somewhat from the case just cited.

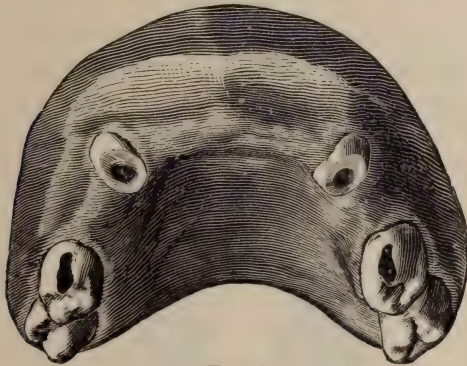


FIG. 1.

Fig. 1 represents the mouth with cavities in the anterior approximal and masticating surfaces of the twelfth year molars. The cuspid roots are capped and banded with platinum, the band extending under the free margin of the gum. Pieces of solder were melted on the inside of the band, making slight prominences on them, grooves being cut around the root so that the cap when crowded to place is held firmly in position and a hole drilled through the cap to permit the pin, which supports the piece, to pass through.

Cut a pattern from tea-lead, or some other suitable material, in the same manner as when making a metal plate, allowing the metal to rest upon the border of the process only, and extending from molar to molar. Make the die and counter-die, strike up a platinum plate No. 26, which forms a cap to cover the ends

of the roots. Through these caps, and directly over the openings in the first cap, drill holes through which pass the pins, which should be as long and as large as possible, extending above the plate to which they are soldered. The iridio-platinum wire is fitted into the cavities in the teeth, extended around the arch allowing small pivots of the pins which pass into the roots, to pass through the bar and solder.



FIG. 2.

Fig. 2 represents this bar with pins soldered to it, extending through caps covering the ends of the cuspid roots instead of through the plate, extending over the entire alveolar border. These caps do not interfere with the patents of the International Tooth Crown Co., as I cut the band to the cap at a point under the bar, and it is not a continuous band supporting a bridge.

Figs. 3 and 4 were not used in the case described, but show a good method of attachment.



FIG. 3.

Fig. 3 represents crowns struck from a piece of pure gold the corners cut out and soldered together, making a good crown easily fitted. On the anterior approximal surfaces, we have bell-shaped cups soldered to the crowns, which are easily fitted to sound teeth, the cup affording an anchorage for one end of the bar when the other end enters the root of a tooth. These cups are made strong, the bell-shape cut out making a good anchorage for the filling by which the bar is attached to the crown. These crowns will be found useful in attaching some pieces where it is not deemed advisable to cut a cavity in the tooth. It is not an infringement as they are not soldered to the bar.

Fig. 4 represents the crowns in position, and the bar with the ends entering the cups on the crowns.

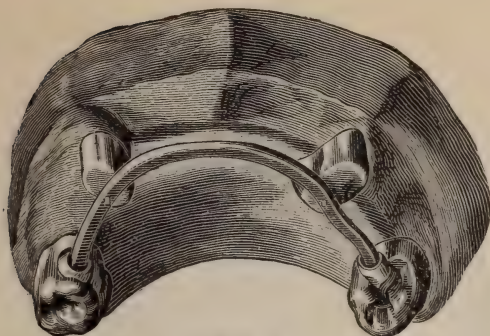


FIG. 4.

Fig. 5 represents the teeth attached to the bar in the manner already described, except the pieces of platinum plate which stand between the teeth back of the cuspids, coming above the masticating surface to which a piece of platinum plate is soldered, with the end left long to be turned in and porcelain baked about it.

The platinum masticating surfaces and the pins of the teeth being soldered to the bar, about which we flow the porcelain. The plate is also left out of this cut, but it covers the gum just under these teeth forming a guide for the porcelain, also preventing warpage while being baked.

After the contour is secured by adding the porcelain, the plate must be narrowed to a line coming in contact with the gum, spread a thin coating of gum enamel over this plate on all parts except where the plate comes in contact with the end of the root, and bake again. This brings the porcelain in contact with the gum, affording us material with which to displace the gum the required amount. The porcelain now being complete, flow gold over the platinum plate which in this case covers the surface of all the teeth.

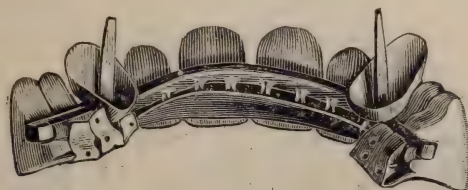


FIG. 5.

The extra length of the teeth giving room to flow the porcelain between the bar and the platinum. This gold I form into cusps, giving the piece a strong and beautiful appearance. Dry

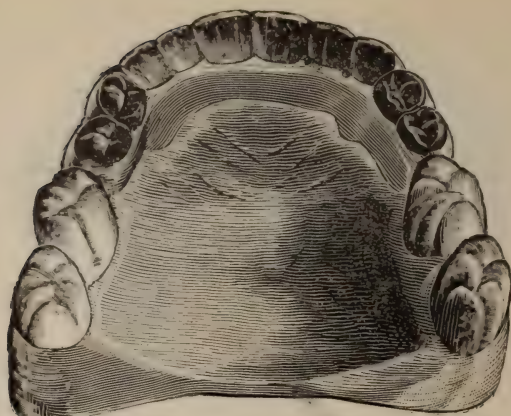


FIG. 6.

the cavities in the molars and the root canals, place a small quantity of amalgam around the pins to close the opening in the end of the root, also a thin coating in the bottom of the cavities in the molars, filling the roots with just enough oxyphosphate to close about the pins, and press the piece to place. Fill the cavities in the molars with gold, building directly upon the soft amalgam. The gold will take up the mercury, leaving the amalgam as hard as the gold when the filling is completed.

Fig. 6 represents the inside of the mouth with the piece in position coming tightly in contact with the gum all the way around.

Fig. 7 shows the external appearance of the completed bridge in position. If I have not made all the points in this description clear, I shall be glad to answer any questions that may arise or show the work in practical use. I am making removable bridges which give great satisfaction to my patients, the description of which I will reserve for another article.



FIG. 7.

LACK OF THOROUGHNESS IN DENTAL OPERATIONS.

BY L. P. BETHEL, D.D.S., TOLEDO, O.

PRACTITIONERS almost every day see failures in dental work in one form or another. These are ascertained to be from the hands of either,

1. Dentists who are capable in every way, but heedless.
2. Dentists who mean well and strive to do the best of work, but, from lack of judgment, are not thorough enough.
3. Dentists who are ignorant of the ways and methods of modern dentistry.
4. Dentists who are working for the money regardless of patient or character of the work.

Of course we do not expect absolutely perfect work, at all times, from any dentist at the present time, but we do see some such excuseless errors that we cannot refrain from pointing out a few of them that they may serve as specimens and a warning to others.

The cases here cited are from the hands of prominent dentists, who are supposed to be very competent, and all came under our observation within the space of two weeks' time.

Case No. 1 was the work of a prominent dentist in the second city in size in Ohio. The patient a lady, aged about fifty. The first and second superior left bicuspid were missing. Bridge-work was advised and the teeth inserted. Bands were made to encircle the left superior cuspid and lateral incisor, the dentine being fully exposed, in shaping, on the posterior proximal surface of the lateral and on the anterior proximal surface of the cuspid. The two bicuspid facings were attached to the bands with no other support, in consequence of which the bridge, after some months' wear, through gravity and the strain of close articulation caused absorption of the process about the roots of the lateral and cuspid. This continued until the bridge and attached teeth became so loose that they dropped out. Fig. 1 shows the case after it came out. The movement also caused absorption of the process on the side of the central



FIG. 1.

adjoining the lateral so that the root was exposed nearly to the apex. The lateral and cuspid were perfectly sound and firm when the bridge was attached. The piece was worn but a few months with comfort. The period that elapsed from time of insertion until the piece came out was about one and a half years. The mechanical part of the work, however, was well done. The same mouth contained another piece of bridge-work inserted at the same time. The inferior right second bicuspid was missing, the first bicuspid was perfectly sound, the first molar devitalized. The bridge was attached with narrow bands encircling each tooth, no cap crown being used for the devitalized molar. The force of mastication soon loosened the bridge, food collected between the band of the bicuspid and tooth, which, together with the rocking motion, caused such disintegration and abrasion that the tooth was finally worn so nearly in two that the patient one day readily snapped it off with her finger.

Case No. 2 was the work of a prominent dentist in the first city in size in Ohio. The patient a lady æt. about thirty-five years. A porcelain faced crown was placed on the root of the superior right lateral incisor. The root became abscessed, loosened and caused so much trouble that it was extracted. The work, as may be seen from the cut, was not very artistically done. The space between crown and root, at the anterior side, was about $\frac{1}{8\frac{1}{2}}$ in., being about the same on the posterior and lingual sides. In front the crown projected $\frac{1}{3\frac{1}{2}}$ in. On the lingual side the crown did not cover the root and nearly $\frac{1}{16}$ in. was exposed. The lady remarked that "she could always feel something there with her tongue." The spaces had been filled with cement, but it dissolved away before the root was extracted. The Low pin was employed and the root presents a fracture along three-fourths of its length. The lady declares that no treatment was given the root prior to crowning. Other work was done at the same time, a crown being placed on the root of a first superior bicuspid. The lingual cusp had been broken away at least $\frac{1}{2}$ in. below the margin of the gum. A wide band was fitted to the root, removed, and the crown soldered to this band. The crown was set with amalgam and a thin piece of gold plate answered for a grinding surface to the crown, no cusps nor contours having been made. The plate was soon worn through leaving the amalgam exposed on



the grinding surface. The crown broke away after having remained in position about one and one-half years.

Case No. 3 was from a prominent dentist in a large New York city situated on Lake Erie. This was a piece of bridge-work, containing two bicuspid and a molar. Narrow bands were used for support but no caps. The bridge was set against the gums and the lodgment of accumulations under it caused so much irritation that the membrane resembled a piece of *raw beef*. The removal of the bridge was necessary for treatment and cure. The case was in the mouth about eight months.

Case No. 4 was from the hands of one of the most prominent dentists in Illinois' big city on the lake. A central incisor was broken away so that about two-thirds of the cutting edge was gone and decay had extended along the proximal surface two-thirds or three-fourths of the distance toward the gum. A groove had been made along the remaining portion of the cutting edge of the tooth, but only rudimentary, rounded pits were used for anchorage. The filling was built clear down to a strong articulation. In something less than two weeks' time the filling came out. There was a splendid opportunity for the use of screw posts, which, in this case, seemed a necessity. We will add, however, that the filling itself was *very well* condensed and had a beautiful appearance.

Thus it will be seen that the best of dentists do not do the best of work at all times.

Comments on the other classes, as enumerated, are unnecessary as every one realizes the results of such practice.

We hope, however, that what has been presented here may be the means of setting dentists to thinking if they are always as thorough in their operations as they should be for their own, as well as for their patients' benefit.

THE ROBINSON METHOD OF FILLING TEETH WITH GOLD.

BY DR. A. ROBINSON, GRAND RAPIDS, MICH.

FIRST prepare your cavity same as for any gold filling except that the walls be made perpendicular, or nearly so, and also omit

the drilling of "retaining points" and the cutting of "under-cuts." Next take a piece of platinum foil about 36 gauge, English standard, or thinner, and burnish the same into cavity with suitable burnishing instruments. After the platinum has been made to fit the cavity perfectly, *great care* being taken that the edges especially be well marked, the matrix is removed and the superfluous margin outside the line marked by the edge of the cavity, trimmed off. Your impression being trimmed neatly you next fit it back into the cavity and again burnish it firmly in place. Sometimes it may be found necessary to take it out more than once before a really good impression is acquired as it depends somewhat on the skill of operator and also on the form and location of the cavity. Now take the impression into your laboratory and there, with a blow-pipe and soldering block, flow gold into the matrix until full. Care must also be exercised in this part of the work not to over-heat the gold as it is liable to over-flow the matrix when raised to a "flowing" heat and held there too long. In cases where "building out" is necessary it can readily be accomplished by imbedding the impression in plaster or marble dust, and afterward grinding the filling on the lathe to the desired size and contour. Having filled the matrix with gold next take a pair of small, strong pliers, such as are used in the laboratory, and holding the filling firmly in the same, with a thin file cut a groove all around the bottom of the filling in such a manner as to make it have the appearance of a sleeve-button. Your groove or "under-cuts" being deep and well marked, dress the face of the filling on a stone, or lathe head and polish with felt-wheel and pumice.

Now replace the filling in the cavity and with burnishing point on automatic, or with the aid of assistant, burnish all edges to place that may have been displaced or "roughed up."

Lastly, remove the filling, dry out the cavity, fill the mouth with spunk, bibulous paper, or napkins, fill the cavity with cement, Caulk's or other cement, not too slow nor quick-setting, fit filling into cavity and mallet until all superfluous cement has been forced out, cover the filling with a dry napkin and have the patient close the mouth on same to protect until the cement hardens. You can then dismiss your patient making an appointment for another time to have the small amount of "finishing" done which may be required.

It is very necessary to ascertain before cementing the filling if the patient strikes or bites the filling, as it is much easier both for patient and operator, to grind the surplus down on the lathe than to do so afterward with the engine.

COPPER AMALGAM.*

BY LEVITT E. CUSTER, B.S., D.D.S., DAYTON, O.

SINCE in these latter days mastication begins in the kitchen, and the function of the teeth is being largely dispensed with, and since the present food stuffs are lacking in the lime salts of former days, and the teeth are not of as good structure as formerly, it is not surprising that these organs should have degenerated and have become more frequently the subject of caries. We look with horror upon the coming generation, born in wealth and offluence, which, having inherited poorly calcified teeth, shall be nourished upon foods which, in order to satisfy the cultivated palate, have given to the slop-pail those very lime salts which were needed for the more perfect formation of the osseous system and the teeth. Already the first molars of this generation are hardly erupted ere they show unmistakable signs of early degeneracy.

With such a condition of things what are we to do? It has been comaratively easy to save well calcified teeth by filling with gold or other materials, even to an artistic effect, but the conditions are changing. If we boast of being able to save all teeth at this day, in order to do this, we must adopt new methods to suit the new conditions. With these poorly calcified teeth we have to look to their salvation first and artistic methods and effects afterwards. The profession has seen the results of contour fillings and porcelain filling and tips, which could be used only in the very best teeth and not in those of poor structure. We have then to resort to those methods which save teeth first, regardless of appearances; then, if possible, improve these in an artistic view.

Among the improvements made in the manufacture and manipulation of other filling materials there has been a marked one in the line of amalgams. Since the advent of the "silver

* Read before the Mississippi Valley Dental Society, Cincinnati, March, 1889.

paste" of Taveau over half a century ago, followed a few years later by the royal mineral succedaneum of the Crawcour Brothers, amalgam, after exciting profession dissensions, out of which on the one hand grew and waxed strong, the new departure corpse by which its virtues were lauded, and on the other hand, a resolution was passed by the American Society of Dental Surgeons pronouncing it mal-practice, yea, even *discreditable irregularity* to use the stuff; amalgam, after actually saving teeth which were formerly deemed beyond the power of gold, after it was found to require no little degree of art and skill to manipulate it, and after it ceased to produce mercurial poisoning whereby it formed a loop-hole for the medical empirics failures, it has finally found a legitimate place in dental practice. Not only this, but as the faults of amalgam are being more largely overcome every day in its manufacture and manipulation, its range is being gradually extended, not only as a filling material for carious teeth, but as an adjunct in crown-work and in the laboratory.

Copper has been used as an ingredient of alloys from the very first. Its value in this connection has always been acknowledged, in fact it has been the least disputed of any metal used in the manufacture of a dental alloy. When it was not used it was because of its one objection, the dark color it produced. This metal gives a saving power to the amalgam which can be attributed to no other component. The old-fashioned amalgams which contained copper are saving teeth to-day.

The virtues of copper in this relation are several. First, it prevents, or lessens, the spheroiding tendency. This is due to the difficulty with which this metal is amalgamated, so that these unamalgamated surfaces act as a resistance to change of shape. Second, these unamalgamated surfaces when exposed form a salt of copper which, according to Tomes, is first a sulphide which, "under the influence of air and moisture, readily becomes oxidized and forms the sulphate." This layer then of sulphate of copper there formed acts in two ways, namely, a mechanical and a therapeutic. In a mechanical manner it fills up the gap caused by the slight change of shape if any, and forms an intervening and more compatible layer between the filling and the tooth structure. Tomes goes so far as to say that "this sulphate is freely soluble, and hence is likely to permeate the dentine, when it will again be converted into a sulphide, whilst the sulphides of

other metals, not being so readily converted into soluble salts, will not so thoroughly permeate the teeth." By this more compatible layer Flagg says he can fill closer to the pulp and have less shock from thermal changes. In a therapeutic relation the sulphate of copper acts as an antiseptic. Probably this is the strongest argument in its favor. As an antiseptic it prevents fermentation and the growth and action of *leptothrix* or *bacterium lactis*. Dr. Black, after twenty-six experiments with different filling materials in test tubes containing "beef-extract, sugar solution previously infected with carious fungi (pure culture)" says: "We see from these results that the only filling at present in use which exerts a continual antiferment action upon the walls of the tooth and its immediate surroundings is the old copper amalgam; not only that, but the very substance of the tooth containing such a filling itself becomes antiseptic, a piece of bluish or bluish-green dentine from such a tooth very powerfully retarding the development of the fungi, and indeed two such cases completely destroying them. Secondary decay in such a case would be next to impossible where anything like cleanliness was observed." The antiseptic power of the copper sulphate thus formed I think is accepted by every one; even Dr. St. George Elliot, of England, who lately had an article in the London *Dental Record* upon the shrinkage of pure copper amalgam, says it "is a material of considerable value as an antiseptic."

Copper as a component of an alloy or amalgam with all these good qualities is not without an objection. The very thing that makes it of value as an antiseptic, at the same time lessens its value from the artistic standpoint—the copper salts are black. A filling having copper as an ingredient turns horribly black and at times the tooth itself will become darkened by the infiltration of copper salts. But we very often have to deal with teeth of poor structure, and as first stated, with the incoming generation we shall have more of them which must be filled with a material which has more than a mechanical effect or else be crowned. The appearance is but little compared with the salvation of the tooth, especially in bicuspid and molars. The English have saved teeth for years better by the use of copper alloyed amalgams than we who have been more artistic and used a white amalgam. Dr. Black says: "I do not hesitate to say that if our only object is to check the destruction of tissue by caries, there is no

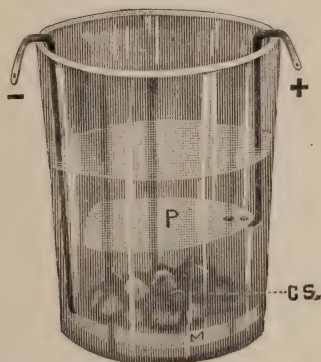
material at present in use with which this object may be so surely accomplished as with the use of copper amalgam."

In view of the virtues of copper as a component of alloys, as shown and proven for fifty years, of late the effort has been made to form an amalgam composed entirely of pure copper and mercury. How far this has been successful is the object of this paper, for as well as others the author has been working in this direction.

Copper is a metal very difficult to amalgamate. Mercury will not directly combine with it under ordinary circumstances at all. When it was found necessary for different purposes to coat copper with mercury a strong solution of mercuric nitrate was rubbed upon the surface when it would become coated with mercury. Taking advantage of this I endeavored to procure a copper amalgam by triturating precipitated copper with free mercury in a solution of mercuric nitrate. Pure precipitated copper was obtained by immersing a strip of zinc in a solution of chemically pure copper sulphate and washing the precipitate with hydrochloric acid. Copper amalgam was obtained by this process it is true, but the amount of work required for the small amount of amalgam obtained caused me to look in other directions. I thought to take advantage of the law of nascentcy of elements, when an element is in its most active condition, when one is liberated in the free state, or when changing its form, as being precipitated from a solution. About this time I saw the article of Dr. Weagant in the *Dental Review* upon the manufacture of copper amalgam by precipitating the copper from a sulphate solution of a strip of iron in a glass containing mercury. The copper comes out of the solution in direct contact with the mercury and there the two combine. Iron is used to precipitate because the mercury has no affinity for it like for zinc. But after a thorough trial of the method, while it was an improvement upon the mercuric nitrate method, the slowness of the operation and the danger of contamination with iron, lead to further study and experimentation.

The idea of decomposing a solution of copper by an electric current, or in other words, possibilities of electrolysis had at times suggested itself, but not having the facilities had not been tried. Purchasing a four-cell common copper and zinc battery, the bottom of a glass tumbler was covered with mercury and filled with

a solution of chemically pure copper sulphate. Allowing the negative wire of the battery to extend to the bottom of the glass and in contact with the mercury, this, the mercury, then became the



negative electrode, M. The positive wire ended in a strip of platinum which was immersed in the solution but not touching the mercury, and thus was formed the positive electrode, P.

According to the laws of electrolysis electro-negative elements go to the positive electrode and electro-positive to the negative electrode. Sulphur and oxygen being electro-negative were liberated in the form of SO_4 , technically known as *sulphione*, at the positive electrode. Hydrogen and copper being electro-positive were liberated at the negative electrode. The hydrogen escapes as a gas and the copper being in a nascent state combines with the mercury constituting the cathode in which it seems to assume a crystalline form as can be felt by the finger.

After a little experimentation it was found that instead of renewing the solution of copper sulphate, all that was necessary was to add a few crystals of chemically pure copper sulphate which would rest upon the mercury until they were dissolved, C.S. Thus the process was continuous; as fast as the solution was decomposed fresh copper sulphate was dissolved from the crystals, and all that was necessary was to take out the mercury just where it became stiff enough to handle by being filled with copper. After this is triturated a little it will be found that probably only one-third of its bulk is copper and a large portion of the mercury may be squeezed out through the chamois skin and put back in the glass to begin again, a little more being add-

ed to take the place of that which remained in combination with the copper. So you see there is no waste of mercury.

The amount produced by this process was very encouraging. With a battery like the one above described, when in good condition, about one-half ounce of copper could be amalgamated in one night.

I now thought that I alone had reached the acme of success in the manufacture of pure copper amalgam, but like a cold wave that sweeps over a country a good many are effected at the same time, and I was one of them. When the copper amalgam question came up there were others working in that direction also, but they had kept their discoveries secret, and ever one I suppose independent of the other; at least my own were entirely original with myself. I was very much chagrined, however, when at Chicago last month to find that the manufacturers of copper amalgam in that city were using a process quite similar to the one I had thought out. I found I was not the only smart one in that direction by any means. The processes differ in this respect, however; instead of using a platinum electrode they use electrolytic copper as an anode which, in a solution of dilute sulphuric acid, is dissolved by the action of sulphuric acid, and entering the solution is liberated at the cathode, or mercuric anode. This process is simply the electro plating of mercury. The cost of chemically pure copper sulphate is about twice that of the electrolytic copper. But owing to the fact that electrolytic copper is only 98 per cent. pure, being contaminated with antimony, bismuth and arsenic, I claim originality in presenting a method by which *absolutely* pure copper amalgam may be produced with no more trouble and with but an additional expense of one and one-half cents per ounce.

The copper having been amalgamated the next step is to get rid of the surplus mercury, and it is by this experience that I will be enabled to give a few practical hints as to the manipulation of copper amalgam preparatory to filling. All of us have not the facilities of a hydraulic press to squeeze out the surplus mercury, so under such circumstances it can best be separated by successively heating, triturating and squeezing out through the chamois skin. This is repeated until after setting the required density has been obtained. Herein lies the point of the edge strength of copper amalgam; the more free mercury that can be

taken from the mass the more dense will be the amalgam. After three or four repetitions of the process it will be found that the product when crystallized will be as hard as ordinary amalgam. It is then ready for use, and comes to you in the form of tablets or sticks.

Now in regard to manipulation. After having a pure copper amalgam the next thing for the best results is proper preparation for filling. I may add right here that the whole secret and the most important part of copper amalgam filling lies in this part of the operation. In amalgamating common alloys the all important point to have been observed was to so proportion the parts that no mercury need be squeezed out. A certain amalgam always sets in about the same time. The manipulation had very little to do with that quality. But not so with copper amalgam. The time of setting, whether quick-setting or slow-setting the edge strength, and to a large extent the color, are all controlled in this part of the operation.

The directions usually given to render a copper amalgam plastic, are to heat in an iron spoon until globules of mercury appear upon the surface, crush in a mortar and if not plastic enough add mercury. The manner of heating seems hardly worth consideration, but this is not to be overlooked. The piece should be gradually heated by being held high above the flame and all portions heated alike—not one side a bluish-brown and the other the mercury just appearing. To do this a very good way is used by Dr. Ames of Chicago, who holds the piece in a pair of foil pliers, revolving it over the flame. My method has been to roll my amalgam in thin wafers when first making it so that holding the piece in an old mirror frame it becomes more evenly heated than if it were a compact mass.

The amount of heat is the most important point to be observed. I found when making the amalgam in extracting the mercury, that upon the amount of heat depends the time of setting as well as to some extent the future color of the filling. You can have it quick-setting or slow-setting just as you wish and at the same time have the same degree of plasticity; and for different kinds of work this is a valuable quality. Here is the point to be observed: the setting time of a pure copper amalgam is in an inverse ratio to the amount of heat applied. In other words, if you desire it quick-setting use the least amount of heat

that will bring the mercury to the surface; or if you wish it slow-setting, continue the heat until the edges begin to turn a bluish-brown color. All grades of setting may be obtained between these two extremes.

In regard to the color, if too much heat is applied the filling will become black. I believe to be due to the mercury being vaporized in such quantities as to leave free surfaces of copper which do not again become amalgamated during trituration. You will remember that it was the free surfaces of copper in the common copper amalgams which formed the black salts.

After the piece is heated as desired, it is then trituated in a mortar until the crystalline form is entirely broken up, and the result is either a fine powder or in a plastic condition. If it cannot be made plastic by continued trituration and working in the warm palm of the hand a few globules of mercury may be added from the holder. Another method is practiced by Dr. Ames of Chicago, which is, to add in the mortar a weak solution of mercuric nitrate, one to five of water, and continue trituration. Mercury from the solution amalgamates the non amalgamated surfaces of the copper and it immediately becomes plastic. He then washes it in a solution of bicarbonate of soda to neutralize the acidity. I find that if the alkaline solution is added before the mercuric nitrate is poured off, more mercury is precipitated, and the mass becomes still more plastic. This, however, may not be needed at all times. Dr. Ames claims that by treating in this manner the resultant filling will also be whiter. My own experience bears him out in this. I believe it is due to more perfect amalgamation which leaves fewer copper surfaces exposed to form salts. While this increases the artistic effect of the filling I think it is a question whether it is not at the expense of the saving power of the same, both in controlling the spheroiding tendency and in preventing the formation of copper salts for which virtues we are using the copper amalgam. When mercury is added from the mercuric nitrate solution it produces more perfect amalgamation. The nearer perfect the amalgamation of any amalgam the more is the tendency to spheroid. It was the free surfaces of copper in the old copper alloyed amalgams which retarded the spheroiding tendency. Also mercury added from the nitrate solution by producing more perfect amalgamation, allows less copper directly exposed to form salts. Hence if

there are no salts formed there will be no intervening and more compatible layer between the filling and the tooth—nothing to fill up the space made by change of shape, and nothing to produce the antiseptic effect. Now if free mercury is added from the holder it unites with the mercury already in the amalgam and not with the copper thereby producing plasticity in that manner.

The amalgam thus made plastic is manipulated in filling in the same manner as any other amalgam, but as it can be made quick-setting, can often be finished at the same sitting.

In regard to the color of a pure copper amalgam: contrary to what we would naturally expect, such a filling does not turn as dark as the old copper alloyed amalgam. This is undoubtedly due to the fact that in the old fillings as copper cannot be amalgamated by trituration alone, it was not amalgamated at all; whereas, in the pure copper amalgam, although consisting of nothing but copper and mercury, in this case the copper has been almost, if not at times, completely amalgamated by the electrolytic process, and hence there are less free copper surfaces exposed to form black salts. A pure copper amalgam filling may be kept white on its exposed surface for a time by coating the finished filling at the next sitting with a very plastic facing amalgam of gold, silver or tin. It will not do to use a pure copper amalgam as the base of a filling and face with a white amalgam which contains platinum and zinc, as the latter does not harden when in contact with the copper amalgam. Am happy to say I recently refilled the last of those which gave me this experience. Dr. Sillito uses with success Mood's "gun-powder" amalgam for facing purposes which consists of gold, tin and silver.

A pure copper amalgam is valuable over a copper alloyed amalgam because it is said not to spheroid, and because none but copper salts are formed, and because the waste can be used over. Elliot, of England, says it shrinks more than a common amalgam, but this as well as that it does not spheroid remains yet to be proven. The saving power of a pure copper amalgam over one which is alloyed with copper can only be proven by time.

The practical points in the manufacture, manipulation and effects of pure copper amalgam may be summed up in the following: First, the density or edge strength is in proportion to the amount of amalgamated copper; or in other words, to the extent

to which the copper has been amalgamated and the surplus mercury driven out; second, the time of setting is in an inverse ratio to the amount of heat applied; third, the color becomes whiter in proportion to the degree of amalgamation; fourth, since the virtue of copper amalgam lies largely in the effect of the copper salts formed, acting in a mechanical and therapeutic manner, the saving power of such a filling is in proportion to the amount of salts formed; therefore if we endeavor to improve the appearance of a pure copper amalgam, *per se*, we defeat the object for which we are using it; fifth, as Dr. Black says there is no better filling for saving teeth than copper amalgam about which copper salts are formed, for patients of moderate circumstances and in teeth of poor structure we must at times use it regardless of an inartistic effect, for its worth and not its appearance.

THE INTERNATIONAL TOOTH CROWN COMPANY,
VERSUS
THE DENTISTS OF THE UNITED STATES.

WHAT is the International Tooth Crown Company? What is it doing? It is a corporation not composed of dentists, but whose stockholders and active officers are parties recently connected with the Goodyear Dental Vulcanite Company, who for many years waged war on the individual dentists throughout the country; and its demands and *methods of operation* are very similar to those pursued by the old Goodyear Dental Vulcanite Company. There is this difference, however, the International Tooth Crown Company does not confine itself to any *one* patent, but is on the lookout for Letters Patent relating to dentistry when taken out by any person in the United States. It purchases such patents when practicable and then makes moneyed demands against dentists under them; and, if not submitted to, harrass them by suits in the United States Courts. It has recently, if we are correctly informed, added two new patents on removable bridges to its list.

Those of the profession who consent to pay the royalty demanded, are compelled to sign a license full of offensive agreements, and which is little less than a species of blackmail to say the least, or take the alternative of an expensive suit.

The principal patents now owned by the International Tooth Crown Company are several patents known as Tooth Crown Patents which cover practically, most of the successful operations in tooth crowning, in use by our profession, and patents relating to Bridge-Work, the principal one of these being the Low Patent, under which they practically claim all bridge-work.

The International Tooth Crown Company has suits now pending against members of our profession in the states of Maryland, New York, Connecticut and Wisconsin, and are about to commence suits in other states, or threatening to do so.

A Connecticut and New York case was heard over two years ago, in which a voluminous record was made up on behalf of the complainants and defendants. Upon that record as made, the patent on bridge work was sustained, and an injunction issued against the defendant dentists. The bill, however, was dismissed as to the several patents or crown work, and an appeal was taken by the complainant, the International Tooth Crown Company, to the Supreme Court of the United States, where such patents are now pending.

To our personal knowledge the International Tooth Crown Company claims that the tooth crown patents will be unqualifiedly sustained in the coming trial before the Supreme Court of the United States, and that every member of our profession who has done tooth crown work will be subjected to litigation, put under injunction and be compelled to pay costs, damages and profits for infringement of these patents; and by reason of the voluminous and confused record on the part of the defendants in that case, there is great danger that this will be the result.

Our present annoyances from litigation are the claims of the Company on bridge work under the Low patent. The greatest danger, however, is that we will remain idle until the Supreme Court's decision on what is known as Crown Patents, then, if the decision is in favor of the Company's patents, as we anticipate, we will not be ready to meet them.

Now for the remedy. The only way to meet this problem is to get ready before hand for the worst, viz.: the sustainment of these Crown patents, by the U. S. Supreme Court.

The profession should be in such shape that any member, however humble or obscure, or however remote from the large centers he may live, can step forward in any court, on short notice, with

full and complete testimony to defeat these Tooth Crown Patents, irrespective of and additional to any evidence presented in the case now pending in the U. S. Supreme Court.

To accomplish this single-handed and alone will involve the dentists in endless expense and trouble, and probably result in victory for the company. *Concerted action is imperatively needed.*

With this end in view, at the earnest solicitation of many prominent members of the profession, "THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES" has been formed. Its object is to contest, in a lawful and equitable manner, the patents of this company or any other patents relating to dentistry, where the validity of such patent has not been fully established. After competent legal advice it was incorporated. This was accomplished under the above name set forth, and the undersigned consented to act as the first Board of Directors. The number of Directors was fixed at three, as it will be obvious to all that the work of such an organization to be prosecuted successfully must be in the hands of a small number, not widely separated, so that there may be concerted action without delay.

By-Laws have been adopted, a copy of which we will forward to you.

THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES PROPOSES TO TAKE CHARGE OF ALL SUITS COMMENCED BY THE COMPANY AGAINST ANY OF ITS MEMBERS WHO UNITE THEMSELVES WITH THIS ASSOCIATION BEFORE SUCH SUITS ARE COMMENCED.

And we state *unhesitatingly* and *advisedly* that with the evidence we now have in our possession and procurable, we will be able to defeat this company in their suits against any member of the PROTECTIVE ASSOCIATION on a claim of either Bridge or Crown Patents.

In order to do this we must have funds to engage the best legal talent, and to collect all the required evidence and place it in form to be used in any part of the country. We therefore ask a general response from the profession. The membership fee is only \$10.00, which will entitle the member to protection against the company, or against any unjust prosecution on doubtful patents relating to dentistry.

The names of the members will not be made public.

We beg the hearty coöperation of every dentist in this movement. The benefit will be shared by all, while the work must

mainly devolve upon a few. Dentists can greatly aid the Directors by *responding promptly*, and by inducing those whom this circular may not reach to join the Association. *Do not lay this upon the shelf until you have mailed your reply enclosing \$10.00.*

We further desire any one having evidence, relating to either crown or bridge work, which evidence relates to crown and bridge work done before the year 1881, to send us a detailed description of such work, enclosing a drawing and sketch of the work when completed, if possible, no matter how roughly such sketch may be made, and giving the name of the party for whom such work was made, and for how long a time used.

Please sign the By-Laws, and send name and address, *plainly written*, with membership fee, to J. N. CROUSE, Chairman, Board of Directors or the DENTAL PROTECTIVE ASSOCIATION, 2231 Prairie Avenue, Chicago, Ill., who will forward you a receipt.

LYMAN J. GAGE, Vice-President of the First National Bank of Chicago, has kindly consented to act as Treasurer of the Association.

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|---------------------------|---|---------------------|
| J. N. CROUSE, | } | BOARD OF DIRECTORS. |
| T. W. BROPHY, | | |
| E. D. SWAIN, | | |
| LYMAN J. GAGE, TREASURER. | | |

P. S.—To avoid unnecessary confusion and delay, *all communications should be sent to*

J. N. CROUSE, 2231 Prairie Avenue, Chicago, Ill.

Correspondence.

"I charge you that this epistle be read."

CONTINUOUS GUM AND RUBBER COMBINATIONS.

BY DR. L. P. HASKELL.

DR. MILLER says, in reply to my criticism on his so-called new invention: "If Dr. Haskell had looked the matter up he would have discovered," etc. Why bless your soul, I was so

familiar with the thing that I had made a set before Dr. Fuller thought of it. In referring to Fuller's patent, I simply called attention to the fact of a continuous-gum and rubber combination twenty-five years ago. Since that Verrier brought out his sections, under the name of "Continuous-Gum Facings." A few years ago Dr. Land *originated* the same thing, and I think patented it.

The advantages Dr. M. claims are, "it is thinner, lighter in weight, *preferable in color*, and will not change its form in vulcanizing."

Having made continuous-gum dentures for thirty-three years, and as the models on my shelves will show, upon every conceivable form and condition of gums and palate, I can say I have not realized either of the above "advantages" necessary, except in the very rarest instances. I have never been obliged to replace a continuous-gum set with other material, on account of weight or thickness. If the case is properly constructed and articulated the patient neither realizes weight or thickness, except when from some cause the plate is loosened, and the effort is made to replace it with the tongue. The change in "fit" in baking is of the rarest occurrence.

I do not understand what he means by its being "preferable in color." He surely does not mean to say that the lingual side of the plate, which is the only portion that is seen in the mouth is preferable in color when it is rubber or gold than when it is a perfect reproduction of the natural palate in color, rugæ, and general conformation. This feature of continuous-gum work is one of its especial advantages.

No, friend Miller, you must find other reasons than these for your claims as to the merit of the "combination" and the only claim possible is *cheapness*.

Mention is made of making a combination with gold. This certainly does not cheapen the work, for the cost of gold is double that of platina. Then there is the making of the gold plate, the continuous-gum process, and finally the vulcanizing and finishing a rubber plate, and what have you got? A mongrel concern which is neither "fish, flesh nor fowl," and which has cost the dentist more money, time and labor than a straight-out continuous-gum set.

Well, make simply the combination of continuous-gum and

rubber, and *its* only merit, practically, is its cheapness, but what has the patient got?

The elasticity of the rubber in many cases when the natural teeth remain in the lower jaw, will result in fracture of the section, or "facing" and repair becomes necessary. If it was simply the breaking of a rubber plate, the cost of repair to the patient might be two dollars, but to this must be added the repairs of the continuous-gum portion. This involves the removal of it from the rubber, which in many cases cannot be done successfully, so that a new rubber plate is a necessity after the continuous gum has been repaired, and this is far more difficult to do than in the case of a whole set, on account of the danger of the teeth changing position.

So, altogether, there results a pretty expensive repair of a rubber plate breakage.

Dr. M. says "in my practice it has been, and is, proving a success." I have known others to make similar claims, but who, after more extended experience, were glad to abandon what had appeared to be successful methods. "One swallow does not make a summer." The whole pathway of dental practice is strewn with similar wrecks.

This is not a new method either in principle or practice.

Editor's Specials.

"Write the Vision and make it plain."

PARTIAL SET OF FALSE TEETH SWALLOWED, AND BECOMING IMPACTED ARE REMOVED BY THE OPERATION OF CESOPHAGOTOMY.

Mrs. A—, living five miles north of Defiance, on Sunday night, March 31st, dislodged from the roof of her mouth and swallowed an upper plate containing four incisors. Failing to get them up or down, physicians were immediately sent for at Defiance, who arrived in a few hours and efforts were made to extract them through the mouth. During Monday and Tuesday all efforts to extract them were unsuccessful, and on Wednesday

morning Doctor Forbes of Toledo, was telegraphed to come with a view to performing œsophagotomy. Late Wednesday afternoon he arrived and renewed efforts by means of all the most approved forceps and other instruments were made for the removal of the teeth. It was found, however, that the swelling had completely buried the plate into the membrane so that no hold could be obtained upon the teeth or plate, and the unanimous opinion of the physicians present was that œsophagotomy must be performed. It was a dark and stormy day and night was so near that the operation was, perforce deferred until morning. The patient's mind was quieted with an accepted assurance that she should be relieved as soon as the morning's light would permit of the operation. Hypodermics of morphia were given, and the best possible efforts made towards nourishing the patient, which had been nearly or quite nil for the past four days. A night of quiet rest was passed, and at nine o'clock Thursday the operation was began by Doctor Forbes, assisted by Dr. Bessey of Toledo, and Drs. Thacker, Reynolds, Stevens and Leever of Defiance. An incision about $3\frac{1}{2}$ inches long, was made along the anterior border of the left sterno-cleido-mastoid and the dissection carried carefully down between the trachea and the carotid sheath until the œsophagus was reached. About one and one-half inches below the larynx the foreign body was felt. A small incision was made in the lateral and posterior side of the œsophagus, one of the teeth came into view, the incision widened a little, a pair of forceps inserted, and the plate with its four teeth carefully extracted. The plate as extracted was of hard rubber $1\frac{1}{2}$ inches long by $1\frac{1}{4}$ inches broad. Both of its lateral edges had been broken and serrated some time before the accident, one cause, doubtless, of its ready displacement in the mouth. The patient rallied rapidly and completely from the anæsthetic and expressed great satisfaction at being relieved of the unwelcome lodger in her throat. The operation was completed without wounding an artery of any size or any nerve and with only a small loss of blood. Two sutures were placed in the upper part of the external wound only, and the lower two inches were left open under antiseptic dressings. The only noticeable thing during the operation was the extreme feebleness of the tissues; the muscular fibres giving way upon slight attempts to withdraw them from the field of the wound. Indeed it may be said that the patient

was extremely weak, being the mother of two children the oldest about three years and the youngest six months and nursing at the time of the operation. She had also been suffering nearly all winter from bronchitis and been under the care of her physician. After the operation the patient was placed in the care of her family physician and an associate, but their efforts at nourishing her by the rectum seem to have met with little or no success. On Sunday she was allowed to swallow some fluids, but it soon became apparent that her extreme weakness was having a most disastrous effect on her, and on Wednesday morning, nearly six days after the operation, she passed quietly away. Exhaustion, consequent upon her lung trouble, her nursing, and her many days of deprivation of nutrition, was too great for her to overcome.

As well known this is one of the most difficult and delicate operations in surgery and was skilfully and properly done by the operator. The only unpleasant feature in the case was the failure to suitably nourish the patient after the operation.

HEAT AS A DISINFECTANT.

SOME time ago this JOURNAL published a contribution from Dr. Frank Overholser on "Filling Teeth with Exposed or Devitalized Pulp," which closes with this suggestive sentence: "The hot air syringe as a disinfectant and germicide is second to nothing in this class of cavities. The gold or amalgam can then be introduced. The tooth has been placed in a healthy condition and Nature is almost certain to accord."

But the hot air syringe as we see it in our profession now is not very well calculated to set forth the disinfecting power of heat in regard to septic pulp canals. We have in our journalistic experience, more than once said something of heated air as a factor in dental medicine, and of the syringe referred to as an instrument for applying it. But as very many in our profession fail to realize their power and privilege in this respect, we feel inclined to condense in one SPECIAL, a variety of thoughts, some already familiar and some, perhaps, not. They may be more instructive in this way than if scattered throughout our periodical literature.

Our youthful readers may not all know the origin of the hot

air syringe, and the idea of heated air as a remedial agent. As long ago as 1826 we saw our father use it in the treatment of indolent ulcers and caries of bone. He made a blowpipe with a metallic chamber which was covered with wood. Into this chamber some combustible matter was introduced, and a piece of ignited spunk was put in with it. Air was forced by the mouth through this, and it was heated as it passed through or over the fire, and was thus applied to the diseased surface under treatment, the nozzle being guided by the judgment of the operator as enlightened by knowledge and experience. This instrument was then used in cases sent or brought to him by physicians.

But this was not the hot air syringe known to dentists. The invention of the warm air syringe is a good illustration of mind stimulating mind, and is a strong argument in favor of associated effort.

In May, 1855, the old American Society of Dental Surgeons met in Cincinnati. By invitation, Prof. Elisha Townsend, of Philadelphia, Dr. Sam'l S. White, Dr. Wheeler, of Murfreesborough, Tenn., and the present writer, spent the evening at the residence of Dr. J. M. Brown, of Dental Depot fame. While the ladies were temporarily absent from the parlor, something was said of filling teeth, when Dr. Townsend sprang to his feet, and in his earnest, theatrical manner, said something like this: I wish somebody to tell me how to dry a cavity before filling. I don't mean how to dip most of the water out of it; but when I say *dry* I mean *dry*! That's easy, Doctor, we replied, throw a current of warm air into it. That will do it, said he, but where's your instrument? Will make it when we get home, was the reply.

The instrument was made with advice from Dr. J. Taft as it progressed. Almost immediately Mr. H. R. Sherwood made a modification of it, and a cut of this was issued in the first edition of *Taft's Operative Dentistry*, and also in Jno. T. Toland's Catalogue. The original instrument was exhibited, with only its chip-blowing point, at Hope Chapel, New York, in 1856.

The cylinder of this instrument was of heavy sheet German silver, and this was filled, with rods of soft iron wire. When these were heated they cooled very slowly.

For drying cavities a medium sized point answered well, and the comfort of the patient was a safe guide as to the force of the

current. But for disinfecting purposes, a very fine platinum point was used, its orifice having been internally polished so as to avoid an irregular or jagged jet. Let us suppose that a pulp is dead and putrid, of course it must be removed from the canal, as completely as possible. But if a small portion remain at the apex, an expert manipulator can burn it to charcoal, or to ashes, if desirable, and it is quite probable the degree of heat used will kill the microbes, and decompose objectionable chemical reagents.

In disinfecting thus, the current of warm air must be very gentle, for if forced rapidly it will expand, and loose temperature immediately after escaping from the nozzle. You will not forget this if you bear in mind that you can blow both warm and cold with your own breath. We would advise practising on portions of dead animal tissue out of the mouth, so that the whole process can be minutely watched. A few lessons taken thus will teach more than pages of writing can.

Now in disinfecting by hot air, think of the changes. We have all the phenomena of destructive distillation, and the resultant products will vary somewhat according to the degree of temperature. Antiseptic carbo-hydrogens, analagous to carbolic acid, will be formed, and these, with the high temperature, may be relied on to arrest putrefaction, kill microbes, etc., and they come into existence at the time and place they can be most useful. It is difficult if not impossible in some cases to remove every particle of a dead pulp. Suppose a small portion remains at or near the apex, by a very gentle current of heated air it can be dried and burned to charcoal, and there can be no objection to a neatly fitting charcoal plug at the apical foramen. The canal should be thoroughly thus dried and disinfected, even if the pulp be all removed. In this operation it is very important, indeed essential, to avoid a strong or rapid current. As already alluded to, the sudden expansion of the air, after the escape from the nozzle, takes away its temperature.

We contrived a simple apparatus, when in practice in Cincinnati, that insured a gentle current, and we found it very satisfactory. No matter how well the operator knows the importance of a uniform, gentle current, he will sometimes forget, and blow harder than he intends, which makes but little difference, if he is simply drying a cavity, but is serious when disinfecting or cauterizing. To construct the apparatus, take a glass jar of convenient

size. Perforate the cork so as to receive two tubes. Let one tube reach nearly to the bottom of the jar, while the other passes through the cork. By a rubber tube connect the short tube in the cork with the warm air syringe, after having removed its bellows bulb. Through the long tube in the cork let a stream of water pass in, filling the jar from the bottom. As the air is thus displaced it passes through the warm air instrument, and the force of the warm air current is in proportion to the size of the stream of water filling the jar. A little practice will enable the operator to regulate the size of the displacing stream with sufficient exactness. We used the same contrivance with our spray apparatus, or atomizer, and found it very efficient, as well as convenient.

We used the original instrument as a chip blower, having constructed it with removable points; but for drying or cauterizing it is better to have a special instrument, and handle it with special care.

The warm air syringe went rapidly into use for a while after its invention, and was nearly lost sight of afterward. This is readily explained. The rubber-dam had not been introduced, and the general impression seemed to be that extreme dryness of a cavity was not very essential, when it could not be kept dry but for a very short period. And, further, the profession was not then awake to the importance of hot air disinfection. Dr. Barnum's rubber dam invention recalled the instrument into general use, and we feel disappointed that dentists are content with such clumsy instruments. But to construct the syringe as it should be, would make it cost more, perhaps, than many would be willing to pay. Our first disinfecting platinum point was worth more than a present instrument.

SEVENTH DISTRICT DENTAL SOCIETY.

At a meeting of the Mad River Valley Dental Society in Dayton, Ohio, Tuesday, May 21st, an effort will be made to begin District work in this section of the State by organizing the 7th District Dental Society of Ohio, to include the counties of Adams, Brown, Butler, Clermont, Clinton, Fayette, Greene, Hamilton, Highland, Montgomery, Preble, and Warren. It is hoped that all who can possibly attend will be there. Go yourself and urge your neighbor to do likewise.

ANOTHER.

It is the desire of the committee on organization of these District Societies, (appointed by the Ohio State Society last October,) to effect the organization of the 4th District Society at Cleveland on May 14th, by converting the present Northern Ohio Society into the 4th District, or Northeastern Ohio Dental Society, to embrace, Cuyahoga, Lake, Ashtabula, Geauga, Trumbull, Medina, Summit, Portage, Mahoning, Wayne, Stark, and Columbiana counties. All dentists, especially those residing in this territory, who can possibly do so, should attend this meeting as it will be an important one. A program appears elsewhere in this issue.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

COPPER AMALGAM.—When you desire to use over scraps of copper amalgam make them into a pellet while soft before putting away. It will prevent its blackening in heating.

INSTRUMENT SHARPENER.—Dr. McLEAN places a thin metal disk on the mandrel, one of pasteboard over this and then one of emery paper. The disk between serving as a flexible cushion with even surfaces and no grooves.

PLASTER-OF-PARIS STAINED BY DENTAL RUBBER.—All rubbers, more or less, stain the plaster slightly yellow. This is caused by a deposit of sulphur and is unavoidable, especially when the flask is kept well out of the water during the vulcanizing of the rubber.

WARMING MEDICINE BEFORE ADMINISTRATION.—LEWIN recommends the warming of medicines before administering, and of subcutaneous solutions as well. The absorption, he points out, is much quicker and the doses necessarily smaller.—*The Medical Age*.

PAPER CYLINDERS MADE FROM JAPANESE BIBULOUS PAPER.—DR. MORELLI, of Buda-Pesth, finds Japanese bibulous paper cylinders useful in his practice for drying cavities and applying medicaments, and if dipped in mastic or other varnish, for temporary stoppings or dressings.

TO REMOVE THE RUBBER-DAM EASILY.—When it has been retained for some time, as is often the case, we have all found this procedure not a little difficult and to the wearer unpleasant. Before attempting it, therefore, wet the exposed and dried teeth with mild soap-suds, slightly warmed; the rubber will then slip from its place without an effort.

WEIGHTED CEMENT TABLET.—A four-ounce bottle having smooth, flat sides,—preferably of square form without chamfered edges,—and filled with shot, makes a convenient and stable mixing tablet for cement. The weight of the bottle aids in keeping it from sliding under the spatula while a stiff mix is being made, and the four sides admit of repeated use without stopping to perfectly clean them.—J. H. BEEBEE in *Cosmos*.

A FOUR ROOTED LOWER MOLAR.—DRS. LANGFORD & LANGFORD, of Montgomery, Ala., write: We extracted a second inferior right molar for a young colored man which is quite an anomaly. It has an imperfectly developed root, about two-thirds the normal size, a second perfectly developed, and a third fused deeply bifurcated, separated near the apex, with distinct apices and two nerve canals. Upon the whole, from a dental standpoint, we can, I think, claim for the profession a lower molar with four roots. The anatomical appearance of the crown does not indicate an abnormal number of roots.

PULP CANAL CLEANER.—DR. C. F. RICH, Saratoga, supposed that all dentists used Donaldson's nerve-bristles, but he wanted to suggest something which he had used in cleaning root-canals with great satisfaction, and that was simply quill toothpick. We all have a horror of breaking drills in teeth, and all danger of this character can be averted by using the quill, which is one of the finest agents for the purpose, and it is almost impossible to break it. It can be cut down as fine as necessary, and if it is desired to carry cotton on it, it can be barbed. It can be used in any tooth that is open.—*Cosmos*.

WASHING AMALGAM.—DR. B. Q. STEVENS says: When I get a fresh package of amalgam I wash it thoroughly with alcohol three or four times until the alcohol does not color. I then spread it on a clean piece of paper and let it dry, then place it in two large-mouth vials and leave them unstopped. While it may cause it to oxidize if spread out to the air, I think good amalgam sets more evenly and slowly when left in an open-mouthed vial. I find when a package is first opened it sets quickly and works harsh, but when it is left uncorked for a few weeks I find that it sets slower and works more evenly.—*Archives*.

CANAL-FILLING.—DR. J. W. WASSALL: The canals of two lower molars were filled with gutta-percha in the usual manner, except that in the canals of the anterior root, being smaller in calibre, the chloro-percha solution was followed by a tapered gold wire filling instead of gutta-percha cones. There is no advantage claimed for the gold wire other than that it can be more certainly pushed to the extremity of the canal carrying with it the liquid gutta-percha. By this method the necessity for enlarging canals with drills is avoided. The broaches used in this clinic were filed out of platinum gold wire (standard gauge No. 24), a suggestion of Dr. H. J. McKellops.—*Review*.

EXTRACTION OF DECAYED ROOTS.—DR. PRESTON says: I have a method of extracting badly decayed roots, difficult to grasp with forceps, which I will endeavor to explain. With the engine drill a hole in the root as for a pivot. Take a common wood screw, such as carpenters use, of a proper size and with a file flatten it on four sides making a tap. With this tap cut a thread in the root; then take similar screw, not flattened, and screw it into the thread cut into the root, with a small screw-driver or pliers. Extract the root by taking hold of the screw with forceps. It is not necessary to cut the gums, and the worst roots can be removed without even scratching the surrounding tissue.—*Int. Jour*.

EXCISION OF GUM.—DR. A. H. BROCKWAY says: I have never found any difficulty in excising the gum in these cases with a pair of curved scissors, the blades of which have little protecting knobs on the point to prevent them from catching into the tissues. The operation is very simple. I first obtund the sensibility of the part to be cut off by a momentary application of Von Bon

horst's preparation, then grasping the free edge of the gum with a pair of Bogue's pliers,—which, as you know, lock with a spring catch when closed,—I allow my assistant to hold them and draw the gum a little up, when, with usually one motion of the scissors, I clip off the superfluous gum with very little trouble or pain.—*N. Y. Odont. So.*

APPLYING THE DAM.—In applying the rubber-dam to teeth which present great irregularities of circumference, especially when they have been cut away with a file, it will sometimes be found that a single thickness of rubber will not perfectly adapt itself to the tooth, and leakage will occur. By slipping over the tooth some very small rubber bands, the surface is made smooth enough for the rubber-dam to grasp it firmly and touch at all points. With regard to punches for the rubber-dam, I have for a long time used a blunt, polished steel instrument, with a square end, about a quarter of an inch across, and, stretching the rubber over that, I touch it with a sharp blade at differing distances from the point, according to the size of hole desired.—*DR. RICH.*

BUFFING STEEL INSTRUMENTS.—The old-fashioned method of "buffing" steel instruments is laborious and often difficult where the surfaces are inaccessible, as in the case of several patterns of excavators. The following method will be found very useful, the work being done well and rapidly. Melt two parts of mutton suet and one part of yellow wax, and whilst in a fluid state incorporate with them a sufficient quantity of *flour emery* to make into a thick paste. When cold apply a small quantity of the cake to an old brush mounted on the lathe mandrel and polish in the ordinary way, avoiding undue pressure where the instruments are delicate. A good surface is in this way ensured which is incomparably superior to that imparted by a buff stick.—*Dent. Record.*

FACTS WORTH REMEMBERING.—The mechanism of hand-pieces and right-angles is frequently rendered useless from excessive pressure arising from a desire to hasten the cutting operation and forcing the tools beyond their capacity. Many dentists hold on to their burs until the edges of the leaves are entirely worn off, and then press on the hand pieces or right-angles so as to force the cutting, or even with new sharp instruments they use double

or triple the requisite pressure, and thus damage things generally. The necessarily delicate mechanism of the hand-pieces and right-angles will not successfully stand such treatment. The gearing of right-angles, although made as strong and heavy as the space will permit, is nevertheless quite a weak affair and should be used carefully and cautiously.—*Dent. Headlight*.

METHOD OF INVESTING.—DR. T. E. WEEKS' original method of investment and soldering: After assembling the various parts together, ready for soldering, when setting any of the porcelain crowns with a band or ferrule, Dr. Weeks coats the porcelain tooth with oil, and wraps the piece in *moist* asbestos felt foil, leaving exposed only those parts to be soldered. By this means the piece may be immediately soldered, without waiting for the investment to dry; furthermore, the porcelain is better protected from sudden changes in temperature than in any other method of investment, because the asbestos is so excellent a non-conductor. This investment is also applicable in those cases where opal glass or jewelers' white enamel is used in joining Bonwill and other crowns to the bands or collars.—*Review*.

CARE IN BLEACHING.—The cavity should in all cases be washed out with ammonia or borax to remove fatty matter, and no substance which has the power to coagulate albumen should have been used, as such prevents the ingress of chlorine to the tubuli. For the final washing, distilled water should be used, as river water ordinarily contains sufficient iron to stain the tooth in combination with the chlorine as ferric chloride.

Lastly, after the bleaching is completed, the cavity and pulp-canal should be filled with white oxychloride of zinc, which should be inserted with instruments of bone, hard rubber, or wood. It should be carefully borne in mind that no metallic instrument should come in contact with the tooth after the chlorine has been applied.—DR. KIRK, *1st District Society*.

TO KEEP MOISTURE FROM FILLINGS.—DR. CODMAN says: I have had some cases recently where it was desirable to keep a tooth dry for some time after filling and have devised the following method. By its use you can do away with the disagreeable mouthful of rubber-dam, and allow your patient to sit comfortably in a chair and read, while you attend to others; or you can operate on other teeth in the same mouth.

The rubber-dam is applied and tied as usual; after finishing the filling or whatever is to be done, the dam is gathered over the crown of the tooth and tied tightly with a ligature as close to the tooth as possible. The dam above the ligature is cut away and you have your tooth in a tight rubber bag and can keep it there as long as you wish, with very little discomfort to your patient.—*Int. Jour.*

TO PREVENT SLIPPING OF ENGINE CORD.—DR. GEORGE E. RICE says: Many have been annoyed by the constant slipping of the driving-belt on a dental engine when used with much power. I have discovered by experiment a very simple way to prevent slipping of the belt entirely. It is by the application of resin. It may be applied to the belt as a powder, or, better, by holding a piece of common resin in contact with the belt while the engine is running. The resin promotes friction between the belt and wheels in such a way as to make it possible to drive the engine with great force, allowing at the same time the use of a very loose belt, and with no perceptible slipping. It can be used on belts of any material, and it seems to me that this simple device will be found fully as efficient as the patent rubber rims that are sold for the purpose.—*N. Y. Odont. So.*

LINKING LOOSE TEETH.—Much benefit will result from the fitting of platinum or gold bands to loose teeth, and linking them together with solder and cementing the string of bands to the crowns of the teeth. Dr. G. W. Nichols, of Chicago, was the first to propose this method of holding loose teeth, in an immovable position, some dozen years ago, and we have since practiced this manner of securing teeth with great satisfaction. An impression is taken, and if the teeth are very close together they are cut off the model, and the narrow bands are fitted to the individual teeth, and held together with gum dammar, or other adhesive substance, tried on the natural, dried teeth, then soldered together and afterward cemented on the teeth. The rubber-dam should be applied, and allowed to remain for some time, and then cut it off.—*Review.*

AN IMPROVED CLAMP.—The clamp I now present is a modification of the "How clamp," being made of two pieces of steel, so that one side may be placed at any desired height in relation to the other by simply turning a set-screw at the lower end of the

clamp. Without this adjusting screw there is danger at times of the clamp slipping off the tooth by reason of its being made in two parts; but should the set-screw or its thumb-head prove any annoyance, the same end may be attained by making a series of holes very near each other, running up and down the face of the outside half of the clamp, so that by placing the *clamping* screw through the highest hole in the face of the clamp and screwing it into the single *screw* hole in the back or other half, the outside will be set for a very low cavity, or almost opposite the other half, while by placing the screw in the lowest hole in the face-piece and screwing into the single or only hole in the back or other half, the outside or face is adjusted to a cavity *very* high, while the bearing at the back only just reaches above the shoulder, causing no pain at all.—DR. F. M. SMITH in *Cosmos*.

SOLDERING.—This operation requires considerable skill and practice. The one rule, however, consist in heating the work *thoroughly and evenly throughout not in one place only*. The plaster investment, the plate, the teeth and clasps should *all* be heated to such a point that the solder is *nearly* ready to melt, when the flame is pointed (as it is termed) to cause the solder to flow evenly and smoothly by the concentration of the heat. In soldering clasps to the plate, it is best to file away the plate at all points except at that point where it is intended to unite it to the clasp. At this point it should be fitted *close*. Indeed close fitting is one of the principal secrets of successful soldering. If it be impracticable to do this, by painting the clasp and plate with this whiting and water at the parts it is desired that the solder should *not* flow, the same object will be gained; but this must be carefully done *as solder will not flow where there is whiting*. It is a bad plan to let the solder flow all around, and then use a fine saw to separate the plate from the clasp at points where it is not desirable for the two to be united.—DR. CHUPEIN, *Off. and Lab.*

EXTRACTING FRAIL ROOTS.—My method is as follows for extracting roots so thoroughly decayed into a thin tube that any attempt to extract them with forceps, or elevators results in a chipping off till a large amount of alveolar process is sacrificed, or the attempt at removal is abandoned. Take a square-end fissure bur No. 59 or 60, and grind on the lathe a Δ or spade-point.

This makes an instrument that will cut both at the *point* and *sides*. With this bur revolving in the dental engine cut through to the end of the root, then laterally till you have divided it in half, then an elevator (an old enamel chisel of the proper shape makes a good one) passed between the halves and rotated will detach both pieces, and with a "hoe" shaped excavator or small forceps they are readily removed.

I also find this instrument useful in separating the roots of molars, both upper and lower preparatory to extracting. The advantage of this method is that you do not have to lance the gum or crush through the alveolar process.—J. O. HODGKIN, D.D.S., in *Items*.

TO MAKE SHEET WAX FOR TRIAL PLATES.—DR. H. E. BEACH says: Take, of pure, clean wax, anywhere from one to five pounds, put in a tin bucket, or any deep vessel, with clear water sufficient to fill it within two and a half inches of the top. Set on the stove till thoroughly melted, then set aside until partially cooled; skim all the air bubbles off. Then fill a smooth, straight bottle with *ice* water, a bucket of which you should have by you. Soap the bottle and dip it deliberately in the solution two or more times, according to the thickness you desire your wax. After the last dip, as soon as the wax hardens to whiteness, cut a line through it and remove it from the bottle as quickly as possible. Spread to cool and straighten out smooth while warm. Continue this process until all the wax is made into sheets.

Any office boy or girl can do the work, and make enough sheet-wax in an hour—equal to any you can buy—to last a whole year. Paraffine, or paraffine and wax, may be made in the same way, and colored and perfumed to suit one's fancy. The water in the bottle should always be kept cold in order to get the best results.—*Archives*.

OXYPHOSPHATE CEMENT FILLING.—DR. E. M. S. FERNANDEZ: After the cavity has been prepared in the usual manner for the reception of a plastic filling, the tooth and cavity being perfectly dry, the assistant mixes the cement, at first quite thin; this is then pressed into the cavity with ivory or wooden instruments. Thicker mixtures of the mass are then introduced and with it the thinner portions displaced and pressed out of the cavity. Continue in this manner until finally the filling is finished with very

thickly mixed cement. The surface of the filling is then dried with steel instruments and the powder of the cement. In a few minutes the powder from the surface of the filling should be brushed away with a camel's hair brush, to be followed by thoroughly rubbing it with cotton dipped in sandarac varnish. As soon as the varnish is dry, the rubber-dam can be removed. All of the instruments used should be scrupulously clean, and the filling should be finished in such a way that there is no cutting away or polishing of the surface of the filling, the latter should be polished and made perfectly smooth by the pressure of the instruments used.—*Review.*

TREATMENT OF PYORRHOEA.—DR. ATKINSON in *Cosmos* gives his favorite treatment as follows: The treatment for all patients that you will see, with the exception of about one per cent., will be to give a two-grain pill of the sulphate of cinchonidia night and morning. I have some patients who have pursued that treatment for four years. If they are at all nervous, then take McKesson & Robbins's nux vomica, phosphorus and cantharides, one pill each day, in addition to the four grains of cinchonidia. Some patients require a little more, some a little less, but it is not often they require less. Why do we give cinchonidia? I have a suspicion that what we agree to call cruorin, which has a red color and means a red corpuscle of the blood that is carried through the system for its use, is so nearly like the sulphate of cinchonidia that there is no chemist who has been able to show the difference. Hence I take it that this cinchonidia is readily convertible into the cruorin which constitutes the red corpuscles of the blood. The treatment I have indicated is the general treatment. I can show cases of school teachers who were all "played out" when they came to me, and who are now in full health and happy. I have named the simple prescription that I have given for a long time.

LOGAN CROWN SETTER.—For setting the Logan or similar crowns with gutta-percha, I have constructed a copper holder and heater as follows:

Taking a piece of half-inch round copper rod, I forge at a red heat a tang to about half the diameter of the socket in a suitable wood handle. I cut off the rod so that it will project about two inches from the handle. The end of the rod is then scarfed on

both sides to give it the shape of a tenon a little less than a quarter of an inch thick, three quarters of an inch long, and the full width of the rod. In this tenon I cut a V-shaped notch, in which a lateral crown will fit and be held. By suitably conceaving the notch, a central or cuspid may also be held in it. Into the large socket of the handle I put some stiff-mixed plaster and set the tang of the holder. This I can then heat without making the the handle hot, and the copper carries the heat to the crown so that the gutta-percha will be quickly softened and kept soft until the crown is set exactly in place. The jaws of the setter can easily be bent open or closed to fit teeth of different sizes.

For the lower teeth I employ a setter bent at a right angle three-quarters of an inch from its end. Obviously, special setters for bicuspid and molar crowns may in like manner be made.—W. S. PAYSON in *Cosmos*.

AN ORIGINAL METHOD OF MAKING DIES FOR CROWNS, AND ALSO OF INVESTING A PORCELAIN CROWN FOR SOLDERING.—DR. C. D. SNOW says: In making gold crowns of plaster models of teeth, in the old way, that is, making the die out of the harder metal, and counter out of the softer, you will find the crown is much larger than the plaster model, but if you will reverse the metals, making the die out of the solder, you will find the crown to be about the same size. In making the die you can use pure lead, and run Haskell's Babbitt metal over it for the counter.

I have also found a quick and good way for investing teeth and crowns for soldering is to take a piece of asbestos paper, wetting it in water and wrapping it around the tooth or crown to be soldered, and holding it in place with a piece of fine binding wire. I then turn the blaze on to the whole thing until it is dry. After that I find no trouble in soldering. Sometimes I oil the tooth before putting the paper around it. This way saves time, and is much cleaner. It occurred to me by seeing a jeweler solder set rings with only common wet tissue paper around the setting.

I have the above for over a year, and don't find any trouble with teeth cracking. It is good to use when you fuse a gold band to a crown with jewelers' enamel.—*Review*.

ABSORPTION OF THE ROOTS OF PIVOTED TEETH.—F. NEWLAND-

PEDLEY says: It is a matter of common experience that absorption attacks the roots of pivots, and not infrequently specimens are shown in which such a root has become painful, and on being extracted has revealed the pin of the pivot laid bare by the loss of dental tissue. The disease is generally classed as absorption, and doubtless this is correct in many instances; but a few days ago a case occurred to me which suggested a different origin for some of these lesions. A medical practitioner came to me complaining of a central incisor root that had been prepared for pivoting by Mr. Samuel Rymer seventeen years ago. A gold tube had been affixed by amalgam, but the patient had worn a denture instead of a pivot. The root had been free from pain until the present time, but now a sharp periostitic attack had set in. I tried the usual palliative treatment, but within a day or two it ended in extraction. The stump showed a mass of inflammatory lymph near the apex, and under this there was an area of rough cementum, in the middle of which was a small dark spot. A very fine probe could be passed into a circular carious cavity in the apex of the root opposite the termination of the gold tube, and the wall of the cavity was extremely thin, breaking down under slight pressure.

Had extraction been delayed for a time it is probable that the tube of the pivot would have been laid bare, and the specimen classed as loss of tissue from absorption.—*Dent. Record.*

THE TEMPER OF INSTRUMENTS.—DR. WILLIAM HERBERT ROLINS says: I have the steel for my instruments made into shapes approaching the finished instruments. Then they are put into a tight iron box with charcoal and heated red-hot and allowed to cool very gradually, taking at least twelve hours to return to the temperature of the room. They are then so soft that they can be bent into any desired shape and yet are stiff enough to do the work required. When I want to use one of these instruments I heat it to a red heat and then plunge it into wax as far as I want the temper to extend, generally about a sixteenth of an inch. The remainder of the instrument being perfect soft, it can be easily bent to exactly reach the cavity which is to be filled. I find this a great advantage, as it certainly has cost my patients less tooth substance since I adopted this suggestion made to me by Dr. Edward Maynard. Tooth-bone once cut away can never

be replaced, and that dentist who needlessly sacrifices it, as so many do, will I hope adopt this suggestion and make his instruments to suit the cavity and not the cavity to suit the instruments.

It is best to have a small and shallow metal tray, the bottom of which is kept coated with a layer of wax about a sixteenth of an inch thick so that there need be no hesitation in plunging the hot instrument in through fear that it will be hardened too far toward the shank. After hardening, the temper should not be drawn. I have tried about every method of tempering instruments which I have seen recommended in the dental journals, and after three years use I believe this to be the best. I see no reason for using steel with so fine a crystalline structure as is frequently employed. Ordinary tool steel, such as Sanderson Bros., answers every purpose.—*Archives*.

PROPER CONFORMATION OF LINGUAL SURFACES OF DENTAL PLATES.—When we come to consider the matter, the wonder is, not that patients have trouble in producing proper enunciation of the “s” and “sh” sounds with the average plate, but rather that they are able to speak as plainly as they do. If the plate were filled in back of the incisors, by extending the plate back of the incisors on a line with the contour of the lingual surface of the teeth, $\frac{3}{16}$ or $\frac{1}{4}$ in., then gradually curving up to the palatal portion, the enunciation of the wearer would be improved, and another very substantial benefit be secured, viz.: an amount of strength which will obviate any danger of the plate cracking through the centre. This very annoying accident is often the direct result of the cutting down of the thickness of the plate by the dentist. Sometimes the ends of the pins are exposed in his effort to make a nice, light, *pretty* plate. It is easy to see at a glance how little rubber there is behind it in the original form of the plate, and how much it would be strengthened by the proposed change. A trial will show that the addition will not only be tolerated, but will be a positive advantage. The natural palate should be taken as a pattern, and the addition should be carried around farther than the canines.

If the imitation of nature be carried far enough to reproduce the rugæ upon the plate, it will be found to be a decided benefit, both to articulation and in the management of food in mastication. When the lingual side of the plate is smooth, the tongue

has but little power to hold a morsel of food upon it; while with the rugæ, the food is easily held and managed. They are easily formed by burnishing a piece of heavy tin-foil with wax or paraffine, and then fitting and attaching it to the trial-plate when waxed up and ready for flasking, leaving its edges turned up so that it will be held securely in the plaster when the plate is flasked. The surface of the rubber will come out clean and smooth, and will require only a little polishing. It will be found that a patient who has once become accustomed to the use of a plate made as above suggested, will be extremely loth to return to the use of one as they are ordinarily made.—DR. G. B. SNOW in *Advertiser*.

MANAGEMENT OF COPPER AMALGAM.—*First*: The ordinary small glass mortar supplied by the dental depots is absolutely worthless. One needs a “wedge-wood” mortar at least $2\frac{1}{2}$ inches wide within, and a short pestle.

At first such a mortar will seem rough, and waste material by adhesion, but the surface will improve by use.

Second: The mortar and pestle should be warmed before using. If convenient they should be kept in a warm place, and always ready.

Much of the unsatisfactory working of copper amalgam comes from ignorance, or neglect of this one item. The amalgam is heated over a flame till the mercury oozes, and then suddenly chilled by being cast into a cold mortar. Then, unless it is rewarmed by long continued and vigorous rubbing, it does not recover its working properties.

That warmth is essential, prove as follows: Take a mass in the palm that appears to be crumbly and non-cohesive—a mass that seems to lack mercury. Rub it vigorously in the old-fashioned way with the finger. As the amalgam grows warm it becomes plastic, rolls out like soft putty, the mercury glistens, and is easily squeezed out in a bit of muslin. Still the mass remains plastic so long as it is kept quite warm.

Third: It should not be placed on a cold slab when ready for use. A convenient thing for this purpose may be made of any small wooden box lid, or porcelain jar lid—say $1\frac{1}{2}$ inches wide, and fitting into this a piece of mica. This box also should be kept in a warm place, or warmed on occasion of use.

When copper amalgam fails to work, apparently on account of dryness, it should not be made plastic by mercury, but by re-working—friction and warmth. It will invariably be found to contain more than enough mercury. •

By pursuing this plan, and *not* heating to excess at first, I have found that a filling inserted at the first of a sitting, would often be hard enough to finish at the close—say an hour later.

If the material is not left in excess, but shaped down, a decided improvement in color is often obtainable by repeated pressings of tin foil on the surface. Of course, if much grinding is done afterward the benefit is lost.

Some one in the Illinois State Society meeting said this made the filling pit, but this has not been my experience.—DR. GARRETT NEWKIRK in *Review*.

Books and Pamphlets.

THE PRINCIPLES AND PRACTICE OF DENTISTRY. By CHAPIN A. HARRIS, M.D., D.D.S., late President of the Baltimore Dental College. 12th edition. Revised and edited by Ferdinand J. S. Gorgas, A.M., M. D., D.D.S., author of Dental Medicine, Professor of Principles of Dental Science, Surgery and Mechanism in the University of Maryland. One full page plate and 1,028 illustrations, pp. 1,222. Philadelphia: P. Blakiston, Son & Co., Publishers. Cloth, price \$7.00; leather, \$8.00. Brown, Eager & Hull, Toledo, O.

This reliable work is so well known to the profession that it is not necessary to go into details regarding its contents, but we will, however, note some of the changes that have been made in this new edition. Additions have been made to almost every chapter and new matter added to such an extent that this new twelfth edition contains some two hundred and twenty-six pages more than the eleventh edition, notwithstanding the omissions deemed necessary. Three hundred and eighty-two illustrations have been added and several new systems not before published, in works of this character—appear in this volume. Everything is brought into conformity with the latest and best principles and methods of the profession.

That the work has reached every civilized country and been translated into several languages is evidence of its value as a text book. Including, as it does, Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanics, it covers a large field and the reader is enabled to glean the latest and best of information from its pages. The portion devoted to Dental Surgery covers 333 pages and that on Dental Mechanics 490 pages. It is extremely practical and can be truly said to contain more valuable information regarding the principles and practice of dentistry than any other one volume ever published. We heartily recommend it to all practitioners and students who have need of such a work; and who has not?

DENTAL SCIENCE. Questions and Answers on Dental Materia Medica, Physiology, Pathology and Therapeutics. By LUMAN C. INGERSOLL, A.M., D.D.S., Dean of the Dental Department of the State University of Iowa, 1882 to 1888. Second edition, Philadelphia: Wilmington Dental Mfg. Co., Publishers, 1889. Cloth, price \$2.00.

The first edition of this work brought it into popularity not only among students but practitioners as well. The author has adopted the catechetical style, deeming it the best mode of fixing attention upon that to be learned, and the most concise mode of formulating instruction. In the preface he says: "Using the book for two years in my capacity as a teacher of Dental Science, its utility has been thoroughly demonstrated. I am prepared, therefore, to say that the classes into whose hands this volume has been placed, have gone away from the college with twice the amount of practical knowledge fixed in the memory as those classes taught without the book."

The work covers 140 pages and contains the condensation of sixty lectures given by the author, Dr. Ingersoll, who by reputation is universally known. The book is interleaved throughout for any additional notes. It should be in the hands of every college student and of at least those practitioners who are fitting their students for college work.

A HANDBOOK OF THERAPEUTICS. By SYDNEY RIGNER, M.D., Professor of Principles and Practice of Medicine in University College, etc. 12th edition. pp. 524; New York: Wm. Wood & Co., Publishers.

When an author announces a work as the 12th edition it alone is sufficient recommendation. There are probably very few, if any, who have not heard of, or are acquainted with, Ringer's Therapeutics. As in previous editions the author dwells more upon the indications for the use of drugs in disease than upon the physiological action, making the book really a work on clinical therapeutics. A thorough revision has been made and much fresh information added, not only regarding the new drugs but the old as well. The author in his introduction says:

"I have thought it might prove useful to the student and to the young practitioner to insert in this edition a brief account of the symptoms of disease. Of late years since attention has been drawn to the significance of physical signs, too little heed seems to me to be paid to the detection and appreciation of symptoms, objective and subjective. * * * Moreover there is a wide range of diseases in which physical diagnosis is unavailing and where there are only symptoms to guide our treatment; and unless trained in the recognition and estimation of symptoms, these are just the cases in which the young practitioner is more likely to find himself at sea."

Eighty-five pages are devoted to explanatory remarks on the Tongue, Pulse, Skin, Temperature, Fever, Dropsy, Baths, Poultices and Fomentations, Enemata, Irritation and Counter-irritation, Medicinal use of Water, Ice, etc. The following pages treat of the various therapeutic agents and several pages at the end of the work are devoted to Dietary for Invalids. Followed by a general index, and an extended index to diseases, remedies for each disease being given. There is no other work published that covers just the same ground or could take the place of this one, and no library is complete without it. We urge all who have not already secured a copy to do so.

FAVORITE PRESCRIPTIONS OF DISTINGUISHED PRACTITIONERS WITH NOTES ON TREATMENT. By B. W. PALMER, A.M., M.D. In one large octavo volume. 256 pages. Handsomely bound, \$2.75. E. B. Treat, Publisher, 771 Broadway, New York.

This book is essentially made up of a compilation of the favorite prescriptions of the most prominent physicians of the times. Among them we notice the names of Austin Flint, S. D. Gross, R. Bartholomew, H. C. Wood, N. S. Davis, J. M. Fothergill, J. Marion Sims, W. H. Byford, J. Lotis Cohen, C. E. Brown Sequard, W. A. Hammond, Alonzo Clark and many other distinguished practitioners. The work is designed for a ready reference book for the busy practitioner. Here he finds at once that combination of therapeutical agencies which the experience of the most learned, successful and best trained medical minds of the age has proven is best adapted to meet the indications for treatment in well known conditions of disease. One can readily comprehend its usefulness and advantages and prove the same by purchasing a copy of the work.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONERS' INDEX. A work of Reference for Medical Practitioners. By PERCY WILDE, M.D., and twenty-five associate editors. European and American. pp. 544, New York: E. B. Treat, Publisher, 1889. Price, cloth, \$2.75.

Part I of this work is devoted to the subject of New Remedies and includes not only drugs that have come under notice during the past year, but all new information added to the materia medica in that period. There is also given an extended and excellent article on Mechano-Therapeutics, the practical application of massage in disease and the "Weir Mitchell" treatment, and an article on Electro-Therapeutics, both being fully illustrated.

Part II. Here we have under the names of diseases, arranged in alphabetical order, given new points in respect to treatment that has been afforded by the medical literature during the past year, and original contributions to the Annual. The work closes with a list of medical works published during the past year, list of medical publishers, and of private asylums and homes. Altogether it is a valuable book of reference so far as medicine itself is concerned but, like most of the medical works of this sort, but a very limited space is devoted to the *Teeth and their Diseases*, and what is given is not the best treatment. For instance, we read: "*Riggs' Disease*: Cup. sulph. in powder, applied round gum and denuded fangs." No trouble at all to cure pyorrhea if this includes the whole treatment. The work shows careful preparation and is a valuable one so far as general medicine is concerned and we hope to see the dental department represented by some competent D.D.S. in the next issue, 1890. With the exception of these omissions we see but little to criticise while there is much to praise.

INDIGESTION, BILIOUSNESS AND GOUT IN ITS PROTEAN ASPECTS.

By J. MILNER FOTHERGILL, M.D., member of the Royal College of Physicians of London; Senior Assistant Physician to the London Hospital for diseases of the chest, etc. pp. 316. Chicago: W. T. Keener, Publisher. Cloth, price \$2.25.

PART I INDIGESTION AND BILIOUSNESS.

The author says: "Indigestion cuts down the individual far more than is generally credited. In the modern keen struggle for existence, the dyspeptic is like a man fighting with one hand tied."

Those who have experienced the uncomfortable feelings of this disease fully realize that statement. It is strange, however, that although so common, it is but little understood by the people in general. By adopting the proper treatment most of the cases are curable, but nearly every one heeds not the warning. Dr. Fothergill has treated the subject in a masterly manner and his forcible style and striking comparisons make the book the more impressive. He begins with the history of normal digestion in the alimentary canal and liver, following by primary indigestion, suitable forms of food, artificial digestion, ferments, tissue nutrition, secondary indigestion, indigestion as an intercurrent affection, diet and drink, functions of the liver, phenomena of liver disturbance, biliousness, liver indigestion, treatment of liver disturbance, medicinal and dietetic, and the failure of the digestive organs at the present time.

It is a valuable work for all and especially those suffering from the effects of this disease.

ALDEN'S MANIFOLD CYCLOPEDIA. The issue of the tenth volume calls attention to the rapid progress which this excellent popular cyclopedia is making. The volume extends from Cosmography to Derby, contains about 640 pages and about 100 illustrations, handsomely printed and neatly bound in cloth, all for 50 cents! The Manifold is more comprehensive than any other cyclopedia except Cassell's (which costs several times as much), including an unabridged dictionary of the English language in addition to ordinary cyclopedia matter, and though many of the articles are necessarily brief, they are sufficiently full for practical people, and some articles are surprisingly extended. It would be strange if a cyclopedia of such great merit, published at a cost so surprisingly low, did not reach an enormous circulation. A specimen volume may be ordered and returned if not wanted. JOHN B. ALDEN, Publisher, New York, Chicago, Atlanta and San Francisco.

BOOKS RECEIVED.

INSOMNIA AND OTHER DISORDERS OF SLEEP. By H. M. Lyman, A.M., M.D., Chicago: W. T. Keener, Publisher.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Societies.

"Wherewith one may edify another."

MEETINGS.

Iowa State Dental Society meets first Tuesday in May, 1889, at Des Moines.

Illinois State Dental Society meets second Tuesday in May, 1889, at Quincy.

Northern Ohio Dental Association meets at Cleveland on the second Tuesday in May, 1889.

Georgia State Dental Society meets second Tuesday in May, 1889, at Tybee.

The Dental Society of the State of New York meets on the second Wednesday in May at Albany.

Mississippi State Dental Association meets third Tuesday in May, 1889, at Vicksburg.

Nebraska State Dental Society meets third Tuesday in May, 1889, at Beatrice.

Michigan State Dental Association meets June 4, 1889, at Grand Rapids.

Indiana State Dental Society meets next in Indianapolis on the last Tuesday of June, 1889.

Missouri Dental Association meets annually on July 10th, 1889. Next meeting at Pertel Springs.

American Dental Association meets on the first Tuesday of August, 1889, at Saratoga.

Ohio State Dental Society meets annually. Next meeting at Cleveland, last Tuesday of October, 1889.

ILLINOIS STATE DENTAL SOCIETY.

THE twenty-fifth annual meeting of the Illinois State Dental Society will be held at Quincy, beginning at 10 o'clock Tuesday, May 14th, and continuing four days.

GARRETT NEWKIRK, *Secretary.*

NORTHERN OHIO DENTAL ASSOCIATION.

THE thirtieth annual meeting will be held in Cleveland, Ohio, Tuesday, May 14, 1889, and continue its sessions three days.

The following papers and clinics will be given :

1. Dental Electricity.—Paper by Dr. F. S. Whitslar, Youngstown; opened by Drs. J. E. Robinson, Cleveland, and S. A. Pancost, Ashtabula.

2. Modern Devices Adapted to the Wants of the Operator.—Paper by Dr. J. W. Lyder, Akron; opened by Drs. C. R. Butler, Cleveland, and W. H. Whitslar, Youngstown.

3. Amalgam, its Uses and Abuses.—Paper by Dr. J. R. Owens, Cleveland; opened by Drs. W. H. Fowler, Painesville, and J. H. Siddall, Oberlin.

4. Dissemination of Knowledge of Dental Hygiene to the Masses.—Paper by Dr. L. P. Bethel, Toledo; opened by Drs. Geo. H. Wilson, Painesville, and Chas. Buffett, Cleveland.

CLINICS.

1. Treatment of a case of pyorrhoea alveolaris, by Dr. J. R. Bell, Cleveland.

2. Filling of a buccal cavity with tin, by Dr. H. H. Newton, Cleveland.

3. Filling of a lower bicuspid post. approx. with gold and using matrix, by Dr. J. E. Robinson, Cleveland.

A cordial invitation is extended to all the profession.

S. B. DEWEY, *Cor. Sec'y.*

CENTRAL TENNESSEE COLLEGE.

THE third annual commencement of the Meharry Dental Department of Central Tennessee College, was held Thursday, February 21, 1889. The following composed the graduating class :

Thomas Alston Curtis, Marion, Ala.; Daniel Webster Fields, Mason, Tenn.; Stephen Maberry Hickman, Temperance Hall, Tenn.; James Bullock Maclin, M. D., Shreveport, La.; James Reynolds Porter, A. B., Savannah, Ga.; Alonzo Maury White, Nashville, Tenn.

The medal for the best work in mechanical and operative dentistry was awarded to T. A. Curtis.

MISSOURI DENTAL COLLEGE.

THE Twenty-third Annual Commencement of the Missouri Dental College of St. Louis, was held at Memorial Hall on the evening of March 14th, Professor Henry H. Mudd, Dean, conferring the degree of Doctor of Dental Surgery upon the following gentlemen :

Henry Allen Bragg, Jefferson City, Mo.; Jonathan Otis Eppright, Centerview, Mo.; John Thomas Fry, Moberly, Mo.; Charles Leroy Hickman, St. Louis, Mo.; Philip Frank Hellmuth, Highland, Ill.; William Worwick Holmes, Mount Carmi, Ill.; Harry Taylor Hyams, Port Allen, La.; Gilbert Wesley Jarvis, Moberly, Mo.; DeCoursey Bradley Lindsley, M. D., St. Louis, Mo.; Eugene Beauharinas Neal, Bethany, Mo.; Alexander Stark Oliver, Butte City, Montana; George Harry Pipino, M. D., Quincy, Ill.; Julius Peter Ruge, M. D., St. Louis, Mo.; Henry Ruutz, Basel, Switzerland; Edward August Ferdinand Wulze, St. Louis, Mo.; Frederick Edward Weber, Basel, Switzerland; Joseph Henry Wilson, Hannibal, Mo.; Adrien Zinsstag, Basel Switzerland.

The Honorary Degree was conferred upon Charles Rudolph, Edward Koch, of Chicago.

Prizes were awarded by Prof. W. H. Eames as follows :

The St Louis Dental Society prize, a gold medal, to Adrien Zinsstag, D.D.S., The S. S. White Dental Man'fg Co.'s prize, a set of Varney Pluggers, to John Thomas Fry, D.D.S., and the St. Louis Dental Man'fg Co.'s prize, a Dental Lathe, to Henry Ruutz, D.D.S.

S. H. FULLER, *Secretary.*

AMERICAN COLLEGE OF DENTAL SURGERY.

THIRD annual commencement Monday, March 26th, 1889.

CLASS OF 89.—H. R. Boulter Illinois; Fred J. Burr, Michigan; Samuel T. Burke, Michigan; William H. Dodge, Illinois; C. Fred Fitch, Illinois; Frank J. Gallagher, Iowa; Albert S. Glines, Wisconsin; John A. Gwynne, Illinois; John C. Jones, Michigan; William B. Jones, Iowa; Rebecca H. McIntosh, Illi-

nois; George W. McNulty, Illinois; Louisa Moller, Denmark; William H. Prittie, Michigan; William L. Stevens, Michigan; Charles S. Terry, Illinois; Louis P. Wagner, Wisconsin; C. W. Watterson, Illinois; John A. Whipple, Massachusetts; Henry C. Young, Iowa.

CHICAGO COLLEGE OF DENTAL SURGERY.

SEVENTH annual commencement Tuesday, March 26, 1889.

NAMES OF GRADUATING CLASS OF 1889.—William Aldrich Seward, Minnesota; Heber Barber Bingham, Illinois; Harvey Herbert Bates, Illinois; Hal Billig, Clair, Wis.; George Ernest Brownlee, Illinois; William Graham Campbell, M. B., C. M., Scotland; Arthur Erwin Carpenter, Wisconsin; Frank Eugene Cheeseman, Illinois; William Henry Caldwell Cowen, Kansas; James Albert Curry, Illinois; Nelson Denique Edmonds, Indiana; * Frank Stanley Eiles, Illinois; Follen Peabody Ellis, Wisconsin; Benjamin Franklin Eshelman, Iowa; Edward James Farrell, Illinois; Vincent Fischer, Illinois; Frank F. Fletcher, Colorado; Edward J. Flynn, Colorado; Horace Eugene Fox, Michigan; Enoch Morse Fredericks, Illinois; Clarence Albert Gleason, Wisconsin; William Preston Gorsline, Wisconsin; Arthur Grant Harrison, Illinois; * Charles Wesley Harter, Iowa; Charles Cole Henry, Illinois; Will Ellsworth Hoffman, Illinois; Frank Milton Johnson, Illinois; Emil John Kautsky, Wisconsin; Horace Greeley Logan, Minnesota; William Fletcher McCawley, Illinois; Frank Tyler McConnell, Wisconsin; Frederick Burdette Merrill, New York; Lewis Albert Meyer, Wisconsin; Frederick E. Morris, Illinois; Ralph Waldo Morse, Indiana; William Henry Mueller, Wisconsin; Byron Alonzo Nelles, Michigan; Alfred John Oakley, Wisconsin; George Howard O'Brien, Illinois; William Judson Phillips, Illinois; Roscoe Robert Powell, Wisconsin; Frank J. Raymond, Illinois; Anderson Franklin Reed, Colorado; Alex McLeod Rivenburg, Illinois; Edward Guilbert Robinson, Iowa; Andrew William Rogers, Illinois; David William Runkle, Wisconsin; * Henry Read Sackett, Colorado; Herbert Haynes Silliman, Illinois; Henry Patrick Smith, New York; John Wesley Smith, Illinois; Eli Slifer Straub, Michigan; Joseph Atwood

* Certificate of Honor for attendance upon one Spring Term.

Swasey, Illinois; Fred Strong Tabor, M. D., Illinois; David Taylor, Jr., Wisconsin; Irwin Francis Upson, New York; Charles Edward Vernay, Illinois; Electus Backus Ward, M. D., Illinois; Thomas Martin Welch, Wisconsin; Justus Allen White, Michigan; Simon Willard, M. D., Illinois; Frank Vincent Woodward, Kansas; Clarence Huntington Wright, Illinois.

Number of matriculates, 154; graduates, 64. Honorary degree conferred upon Atwood Swasey.

UNIVERSITY OF MARYLAND.

ANNUAL commencement of the Faculty of Physic, Department of Dental Surgery, Wednesday, March 13, 1889.

GRADUATES CLASS OF 1889.—Charles G. Aven, Virginia; Augustus Pennington Badger, Maryland; Eugene James Bailey, South Carolina; Victor Durand Barbot, South Carolina; Joseph Percy Blair, Virginia; Frank Beck, Pennsylvania; Kelly Ragland Bragg, Missouri; H. Wood Campbell, Virginia; Thomas S. D. Covington, Jr., Virginia; August Adolph Theodor Wilhelm Cuny, Germany; E. Douglas Davis, West Virginia; Henry Davis, M. D., Missouri; Edwin R. Dodson, M. D., Maryland; Pearl Louis Ellis, Vermont; William Lafayette Fish, New Jersey; Harry August Free, Pennsylvania; David Goeblicher, Maryland; Joseph H. Haas, New York; E. Patterson Hayes, Pennsylvania; Joseph Gregory Heusler, Maryland; Reuben Benjamin Hills, Massachusetts; William Henry Holland, South Carolina; John Whiteford McKinnon, Pennsylvania; William Lee Miller, West Virginia; J. England Molony, South Carolina; Solomon L. Nigolosian, Asia Minor; Frank Merriman Oldham, South Carolina; Czeslaus Opielinski, Germany; George B. Patterson, North Carolina; Frank Zea Pirkey, California; Benson S. Roberts, Bermuda; Fritz Franz, Wilhelm Schloendorn, Germany; Joseph E. Sharp, New Jersey; Archie Carver Shoemaker, Pennsylvania; Benjamin Simons, South Carolina; Hampton K. Smith, South Carolina; Cornelius van der Hoeven, M. D., Holland; William J. Warnock, South Carolina; Murray J. Wright, New Hampshire.

Number of Matriculates for session 1888-89, 120; University gold medal prize, Victor D. Barbot, of South Carolina.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

AN IMPROVED APPLIANCE IN THE PHYSIOLOGICAL TREATMENT OF CLEFT PALATE.*

BY HENRY A. BAKER, D.D.S., BOSTON, MASS.

It has usually been said that lesions of the palate arise from one of two causes, that is, they are either congenital or accidental. Congenital cleft of the palate was as commonly treated surgically as by mechanism. The former treatment has been nearly or quite abandoned in recent years for two very good reasons: 1st, it is a very painful one for the patient and difficult for the operator, and a failure of closure is largely in the majority; 2nd, it universally fails to improve the speech even after a successful closure. Notwithstanding the above facts, some physicians recommend staphylorrhaphy. They must certainly do so from want of knowledge of the anatomy and physiology of the vocal organs and their use in the mechanism of speech which is the production of sound, and its direction through the nasal passage or the mouth at will being controlled by certain organs whose modification and resonance enable us to form what we call

* Read before the Vermont State Dental Society, March 21, 1889.

articulate speech. One of the most important aids in producing the above results in the soft palate.

This organ is lifted up and comes in close contact with the pharyngeal wall, thus shutting off the nasal passage which is absolutely essential in producing all excepting nasal sounds.

After the operation of staphylorraphy such a closure is impossible owing to the soft palate having been made too short and tense; hence defective speech invariably follows. Accidental lesions of the palate, as the name suggests, are caused either by accident or disease.

These cases may be successfully treated with a very simple appliance while the same amount of skill exercised on a congenital cleft would have no beneficial result. This may be accounted for by the fact that in the former case the patient had learned to articulate distinctly and use the organs of speech efficiently and correctly, while persons who are thus deformed from birth are obliged to learn the art and methods of articulation by slow and painful processes. The organs require the training which is necessary for one who acquires a new language. Hence the appliance for relief should not only fill up the gap in the defective palate, but should also be constructed as to work on physiological principles in harmony with the natural movements; that is to say it should be under perfect control of the surrounding muscles. It is manifest, therefore, that the success even of the most scientifically adjusted instruments depends largely upon the coöperation of the patient who uses it.

As the above malformations are classed as congenital and accidental the appliances for their relief are classed as follows: obturators and artificial vela. Among the former Dr. Wm. Suerson is the inventor of one which has created much interest. The most important and significant advance in this department of science, however, made itself manifest in attempts to form an artificial velum, and Dr. Stearns was probably the first to introduce its true principle. I speak of these two investigators, Suerson and Stearns, because I am led to think that they have brought before the profession the most scientific apparatus of each class, and it is from a consideration of both of their appliances that I have evolved the principle, in explanation of which this paper has been prepared.

Suerson says, "In order to be able to pronounce all letters

distinctly it is accordingly necessary to separate the cavity of the mouth from the cavity of the nose by means of muscular motion. That separation is, under normal conditions, effected on the one hand by the velum palati, which strains itself, (consequently by the levator and tensor palati,) but, on the other hand, also by a muscle, which to my knowledge has not yet received a sufficient amount of attention in connection with these operations. I mean the constrictor pharyngeus superior. This muscle contracts itself during the utterance of every letter pronounced without a nasal sound just as the levator palati does. The constrictor muscle contracts the cavum pharyngo-palatum, the pharyngeal wall bulging out, and it is chiefly on the action of this muscle that I base the system of my artificial palates."

It will be noticed that Suenson admits that the levator palati is an important organ of speech, yet he makes no provision for utilizing it as such, and only provides for the superior constrictor muscle coming in contact with the distal surface of his appliance to shut off the nasal passage. In my opinion, for the patient afflicted with congenital cleft to acquire perfect articulation with such an appliance (even if it be possible) years of application and training of this muscle would be necessary.

A little reflection will show that this muscle, besides performing its own function, must be trained to fulfill those of the velum palati, levator palati, and tensor palati. But in an accidental lesion this may be all that is necessary as the patient having previously learned to articulate distinctly and having this deformity come upon him afterwards, the superior constrictor muscle would, no doubt, be sufficiently developed to perform that function.

Sir. Wm. Fergusson, in his report of a dissection made by him of a cleft palate in 1844, states distinctly that the superior constrictor was very full, and he also claimed for that muscle very decided forward action in deglutition. It was in the years 1841 and 1842 that Dr. Stearns made his first artificial velum. In 1860 Dr. N. W. Kingsley came into the field and took up Dr. Stearns' appliance. Finding it too complicated for the general practitioner to construct and too expensive when completed for those in ordinary circumstances, he was led to serious thought in regard to modifying its production, but he still adhered to the same principle of utilizing the levator muscle. Dr. Kingsley says

respecting Dr. Stearns' appliance: "Two principles were vital to Dr. Stearns' instruments, namely, first, the artificial velum should embrace the levator muscles of the palate, so that it could be lifted by them; and, second, that it should bridge the upper pharynx behind the uvula and cut off nasal communication at will."

Dr. Kingsley's modification of Stearns' instrument consisted chiefly in leaving off the triple form and doing away with the central slit, the flap, and the springs. The simplified form consisted of two leaves of soft vulcanized rubber, connected in the median line, the palatal portion running down to the uvula, and then bridging across at that point and the nasal portion reaching across the pharynx. Instead of the appliance being made in sections so as to slide across each other, as in the Stearns, the bifurcated uvula slides between the two leaves, and the levator muscles of the palate lift up to meet the pharynx, thus shutting off the nasal passage. It will be noticed that in this simplified form the Stearns principles are fully carried out and to Dr. Kingsley that credit is due. His claims to originality are in the simplifying of the Stearns instrument.

Dr. Kingsley says, "An important principle enunciated by Dr. Stearns as essential to the success of all artificial vela for congenital cleft, was that the instrument filling the fissure in the natural palate, must be of the nature of a valve under control of the muscles surrounding it, and so arranged that it could be elevated by them thus shutting off the nasal passage, as is absolutely essential in the production of certain sounds belonging to articulate language. This principle was carried out by him, first in the character of the material chosen, being of a yielding, elastic nature; and second, in the form, being made to embrace the levator muscles and subject to their control."

Dr. Kingsley in speaking of Suerson's appliance says: "First that of all obturators this is the best form for a congenital fissure, but while the wearer is enabled to articulate with such an instrument it is only after he has learned articulation with another apparatus; second, that a soft, elastic, artificial velum is much better adapted to the acquirements of articulation than any unyielding non-elastic substance, but when acquired an obturator may be substituted; third, that in very rare cases articulation may be acquired with an obturator only, but it is the result of

the extra activity of the pharyngeal muscles, while with the elastic velum, the levators of the palate contribute largely.

A great many practitioners in treating a fissured palate simply separate the nasal and buccal cavities by a thin plate, thinking that the separation is all that is required. Some even make a great parade of this device claiming it to be an improvement over any other appliance. A little reflection will show this to be impossible as I shall endeavor to explain before closing this paper. My own experience with soft vulcanized rubber for an artificial velum is, that if it would resist the fluids of the mouth and not go through a process of decay and change its form, in short, if it could be made permanent, it would be all that could be desired. Since this is impossible I do not hesitate to say that it is a very objectionable material and I have been led to long and careful

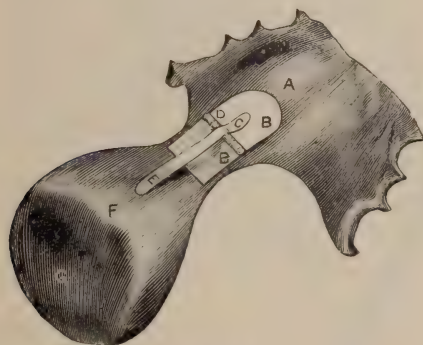


FIG. 1.^a

meditation upon it. I experimented for five years to provide an artificial appliance with hard rubber, carrying out the Stearns principle, whereby I could utilize the levator muscles to control the movement of the appliance, and with articulation could be learned as well as with the soft rubber.

My studies and experience induced me to settle upon the following device, which consists of a gold or hard rubber plate (Fig. 1) covering the roof of the mouth down to the junction of the hard and soft palates. From this point the artificial velum, F, extends back and downward restoring the symmetry of the palatal surface by bridging across and lying upon the muscles of each side. The distal surface, G, or that portion coming in con-

^a The accompanying cuts are kindly loaned by Dr. J. W. White editor of the *Dental Cosmos*.

tact with the pharyngeal wall is quite broad and so constructed as to articulate perfectly with this surface, while the constrictor muscle contracts and closes around it on a semi-circle. This is the Suerson principle and the main ideas I take from that appliance. The velum is of polished hard rubber, gold or platinum and much resembles a chestnut in form. It is attached to the plate with a hinge joint, B, B, thus giving free movement at the junction of the hard and soft palate. At the junction of the hard and soft palate is a stop which prevents any downward pressure upon the muscles when in a relaxed condition.

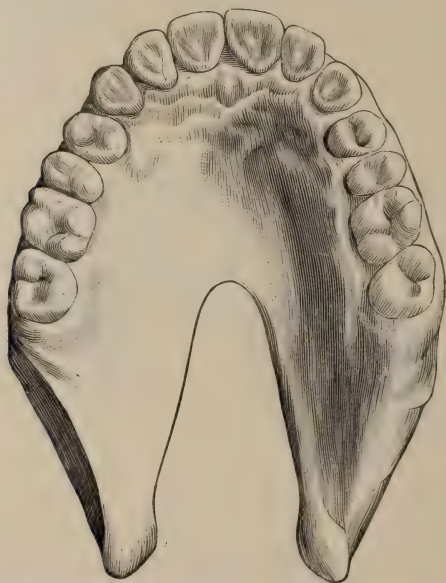


FIG. 2.—The cleft, extending a little beyond the soft into the hard palate.

The bulb-like form of the velum (see D, Fig. 4) necessitated a thickness which would naturally have made it quite heavy, and as the resultant weight would be a serious objection, I was desirous of overcoming the difficulty. A suggestion happily came to my relief in this way: While in a drug store I accidentally took up a hard rubber truss made by a Philadelphia firm, discovering that the part was made hollow, I thereupon wrote to the manufacturers asking them if they would inform me how they prepared the rubber in that way. In their reply I found that the method was quite simple; it is as follows: Take vulcanite rubber in the

soft state and cut the sheets so that when joined together the desired form is given. Then a little water is dropped into the cavity, (I found it better to add a little alcohol,) the edges are sealed and the piece vulcanized in the usual way. The steam produced by the water and alcohol inside creates sufficient pressure to keep the walls distended. By this method the appliance

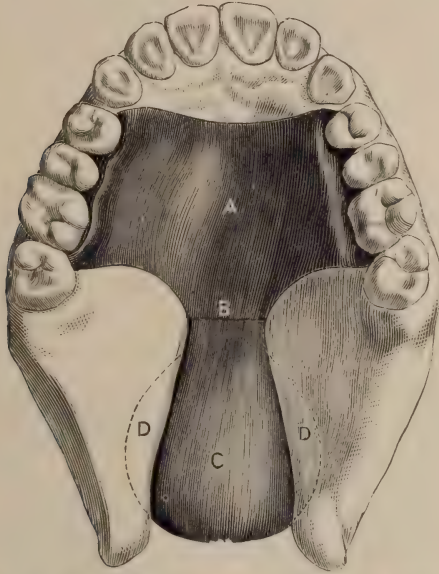


FIG. 3.—Appliance in position: A, the plate; B, the stop, preventing any downward pressure when the muscles are in a relaxed condition; C, the artificial velum; D, D, muscle lying under it, the dotted lines showing the appliance resting on the muscles.

that the cuts were taken from which illustrate this article, was made so light that it would not sink when put in water.

In treating a case by Kingsley's method I was obliged to use a hinge-joint to bridge over a union by staphyloraphy. I found in that case that the appliance was much better controlled by the surrounding muscles and saw a much more rapid progress in acquiring articulate speech. This led me to more fully provide for that muscular movement, and I will endeavor to give the reasons why this should be done.

As we have before quoted from Suerson, in order to pronounce all letters distinctly it is necessary to separate the cavity of the mouth from that of the nose by muscular action, and to close the nasal passage in pronouncing every letter except m and

n. This can be demonstrated by holding the nose while endeavoring to pronounce all the letters as plainly as possible. In studying the mechanism of speech we learn that more than three-fourths of the sounds of articulate language depend upon the integrity of the soft palate for their perfect enunciation. This being the fact, articulation with a rigid obturator must be extremely difficult to acquire. If three-fourths of the sounds depend upon the free movement of the natural palate, it seems to me a sufficient reason why we should provide for that movement in an artificial one. Dr. Kingsley says that with a yielding appliance the levators of the palate contribute largely to correct speech.

The surrounding muscles have control over my appliance in the following way: The artificial velum bridges across the opening and less upon the muscles of either side. (See Fig. 3, D, D). With all sounds requiring the closure of the nasal passage it is thrown up (D, Fig. 4) by the levator muscles, there being no resistance. The thickness of the velum brings its posterior surface in close apposition with the superior constrictor muscle, F, and thereby affords in the pronunciation of the gutturals, a firmer resistance to the pressure of the tongue, G, than can be obtained with a thin obturator. By the presence of the hinge, B, the above movements are rendered so free and easy that there is no tendency to any displacement of the plate such as occurs with a rigid appliance.

If a nasal sound immediately follows a guttural the descent of the velum is rendered certain by its own weight, (Fig. 5, D.) My first instruments show a spring bridging over the hinge by which I intended to accelerate the movements of the velum. This I found later to be unnecessary. To accomplish the above with a material that would be permanent was a problem very difficult of solution. Of course it is impossible to give to a piece of mechanism muscular power, but it should be made so easily movable as to be acted upon by and be under perfect control of the muscles surrounding it. I claim the following advantages for my appliance:

First, that it is made of a permanent material.

Second, that articulation can be learned with it more readily than with any other appliance.

Third, that it is much easier to make.

Thus the unsatisfactory operation of the surgeon has been



FIG. 4.—The artificial palate thrown up by the muscles, E, E, as in all sounds requiring the closure of the nasal passage; F, the superior constrictor muscle, advanced to meet it; G, the tongue, raised, pressing hard against the appliance, as in pronouncing the letter *k* or *g*; A, the plate; B, the hinge joint and stop.

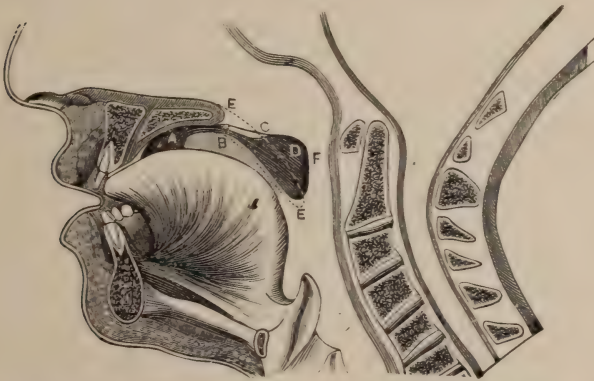


FIG. 5.—The muscles relaxed, the appliance descended, thus giving a free passage for nasal sounds and respiration.

replaced by artificial organs of precision, working upon physiological principles. The ingenious appliances of our distinguished colleagues, Suerson, Stearns, and Kingsley, whose scientific attainments and researches have reflected such lustre upon the art of dental prosthesis, have excited my admiration as I have studied their complex operations; and if I have been enabled to extend their usefulness, and increase their value by substituting an imperishable material for the less excellent substances now in general use, I shall consider that the years of study I have given to this remote and rarely considered problem of science have not been altogether without their reward.

SOME RESULTS FROM THE USE OF IODOFORM.*

BY E. B. DAVIS, D.D.S., CONCORD, N. H.

IODOFORM is a yellowish powder of an unpleasant odor and sweetish taste. It is not readily soluble in water, but is in ether, fixed and volatile oils. It is obtained by the action of chlorinated lime on an alcoholic solution of iodide of potassium, and its chemical formula is CHI_3 .

In the treatment of many of the disorders coming into the hands of the dentist, remedies of certain medicinal properties are requisite, prominent among which are non-irritants, disinfectants, antiseptics and anodynes, and Prof. Gorgas has attributed to iodoform all of these medicinal qualities in a more or less degree. Miller places iodoform fourth in his list of antiseptic agents, and no doubt it is entitled to that position for it contains chemical properties of both of the preceding antiseptic agents, viz., peroxide of hydrogen and iodine, and of the ten such agents that he names in the order of their importance, iodoform alone is in that form in which it can be used as a solid, and in this respect it is of great value to the dental practitioner in the treatment of certain cases when prolonged action of the remedy is required.

It was first brought to my attention by a physician to be used in a case of diseased antrum, but after that was cured, it remained in my office for several years unused, till within a year or more I find myself using it as frequently as any remedy I have in my case.

At the present time when nearly the sole object of our work is the prevention of the growth of fungi it seems to me that we have in iodoform a most valuable agent for producing this result. The cases where it is in my opinion of very great value, are the ones that come into our hands very often, and from the complexity of their circumstances often try our skill and patience, and I find that such good authorities as Prof. Gorgas and James Truman recommend iodoform for us in cases of from slight exposure of the pulp, to a chronic discharging abscess.

I have in my practice of ten years wandered around considerable in treating these, sometimes very obstinate diseases, and

* Read before the Vermont State Dental Society, March, 21, 1889.

what brought iodoform to my mind in these cases, was a knowledge of that fact that iodine would in many cases accomplish what I desired if it could be retained in position long enough for effect, and the effect I wanted was to destroy a partially devitalized pulp or heal a discharging abscess, and I thought if iodine would in many cases do this why would not iodoform, which gives off free iodine accomplish these results in the same manner, and from this thought I commenced my experiments with this drug.

We are all subject to peculiarities in our practice, and it only remains for each of us to find means of escape from them, or rather means of treating them. What to one practitioner is of no great account and is taken care of in an easy and simple manner, is to another a source of considerable trouble, and *visé versa*, and by what means we can use to make our path easier for ourselves and better for our patients, are in the words of the immortal Flannagin, "What we are here for" to-day, and as far as I am concerned I will agree that I have as many trials as any one, and will also say that iodoform has helped me through many of them in a very agreeable manner.

A child appears with an exposed pulp in a sixth year molar, which from irritation is inflamed and very painful. Perhaps the child is not old enough for the apical foramen to be formed, and when it would not be wise to use arsenic in any form. Of course we all have very good methods for this class of cases, and I only with considerable hesitancy bring in mine, if it is new to you, and only add my testimony to yours, if you pursue the same course of treatment.

I think that this pulp should be capped, and I have regard for every one's opinion in relation to capping pulps, and I proceed as follows: As all good dentists do in such cases I prepare the cavity as carefully as I can, I like to expose the pulp if the decay is very soft in its vicinity, and if I get a drop or two of blood I think it beneficial rather than otherwise. I keep the cavity washed out with warm water and carbolic acid and see that everything about the cavity is clean before I commence to apply the filling materials. I do not see the justice of using any of the acid preparations on account of their liability to irritation, and for these cases I have Weston's non-irritant cement, which is simply a white powder to be mixed with water, and into this I mix iodoform powder in proportion as I think the case requires,

if the pulp has been very painful oil of cloves and creosote in equal parts may be added or a drop of eucalyptus oil if septic tendencies are indicated.

The cavity as dry as possible, this is thoroughly mixed and placed in the cavity to cover the pulp, or what remains of it, or the entrance to the canals if they are open. Cotton may be used to absorb any free moisture, and in a minute or two the cavity may be filled with oxyphosphate and the patient dismissed with instructions to return if soreness occurs.

In treating this class of cases which comes to us so often through the ignorance of the parents in regard to the stability of the sixth year molars, I have found this method painless and one that has given me a great deal of satisfaction. In the few months that I have practiced this mode of treatment, I cannot recall a case that has returned for further treatment. And as the progress of decay has been in the cases, I have used this method from a condition when only irritation of the pulp has taken place, to a partial death of it from long exposure, and if we can, as I think you all will, accord the results of this practice to the iodoform used, we will find it demonstrated to us that the anodyne, antiseptic, and disinfectant properties of this drug are true, and if true, should it not receive our commendation? The use of this method is not confined to children or even young people, but circumstances are continually appearing when it can be used with ease to the dentist and comfort to the patient. In cases of pulpitis, either slight or aggravated form, when from the want of time on the part of the patient, the pulp cannot be destroyed, and the cavity properly filled, this treatment will carry them for several months painless, much to the gratification of both parties interested.

I have always been opposed to the application of arsenous acid to a pulp if it shows indication of inflammation, till such inflammation had wholly, or in a measure subsided, or the pulp had for two or three days remained painless. And I have found iodoform used in connection with equal parts of oil, of cloves and creosote from the almost universal benefit derived from its use, as near a specific, in such cases, as we can hope to find. In fact I cannot imagine anything that I could use easier, the only fault of it is the odor, and that in a measure can be destroyed.

Now I suppose I ought to say something in regard to the

final results of this treatment of exposed and inflamed pulps. From the short time I have practiced this method I am not prepared to give my statement in regard to these pulps, as I cannot recall any case where I have continued the treatment to a final filling of the pulp cavity, as I expect to in nearly if not all the cases. But my theory is that in all the teeth where there was much exposure and irritation of the pulps, they will die, and why should I not expect to find them dead if my theory in regard to iodoform is correct, and iodine will in time devitalize a pulp? I expect to find them dead, if not I shall be very happily disappointed and have a still stronger faith in iodoform. Furthermore, I expect to find the tooth thoroughly disinfected and in a condition for immediate filling.

I may be wrong in my conclusions in this regard and further treatment may be required. I shall take notice of the future progress of these cases with great interest, and hope to report the results at such a time as they are assured.

I do not stop here with the use of iodoform, for occasionally other cases present themselves when I find it of great service, and that is in the treatment of those conditions of periosteal disturbance attended with discharges through the gums, either from one or several sinuses, a sort of weeping of pus through the mucous membrane, which indicates a disease of long standing and chronic in its character.

Although I have healed many of these cases previously to my use of iodoform, the application of this drug has simplified the treatment to a considerable degree.

If the pulp cavity and canals can be well opened up and washed out with a weak aqueous solution of carbolic acid, and packed with cotton dipped in oil of cloves, and creosote and iodoform, sealed up and as far as possible left undisturbed, the result will be almost magical, and still further in these cases I have sometimes, in fact very often, applied iodoform in the permanent filling of the root.

Without any discussion in regard to root filling, I will simply state that I use in some cases a solution of gutta-percha and points of the same. In the solution I incorporate iodoform powder which is readily taken up by the chloroform, and this is applied to the roots and the filling completed after the manner of the case in hand. And it has been with great satisfaction that I

have seen chronic periostitis heal to entire insensibility to pressure, either to the teeth themselves or to the alveolus over the roots.

Perhaps I have in some cases expected more of this treatment than I shall realize as the cases continue, and many times I may fail to accomplish my object at all, but I cannot look upon a failure, or two or three failures, as establishing the fact that it is all wrong, and cast it aside as useless, but if I think there is merit in any line of treatment that is brought to my attention I thoroughly test it, to find if those merits do exist, and we are all able to judge more or less quickly on those points.

As "one swallow does not make a summer," one success or failure will not establish any fact in regard to the value of this or any other mode of treatment, and one judgment should not be founded on a small number of cases.

Idiosyncrasies appear to us as to the physician, and should receive at our hands such treatment as in our judgment is best for the condition.

The best and really only way is for us to make a study, as far as our faculties will allow, of each case that comes to us for relief, and not expect that one mode of practice is all that is necessary for all the varied and complicated conditions that may come into our hands for treatment.

And though I may have spoken rather enthusiastically of my results with iodoform as far as I have been, a continuation of the use of this drug may give me results that will very materially change my course of treatment in some cases. And I expect to learn from some of you of benefits to be derived from the use of this drug in other ways than mine.

In conclusion, I will say that I have been using iodoform for more than a year and obtaining the results spoken of without examining the authorities in regard to its properties, and to ascertain if I was alone in its use and was only obtaining results with it that others got from different methods. But in a research among such books as I had at hand, *American System of Dentistry*, *Dental Medicine* by Gorgas, *Stocken's Dental Medicine and Cosmos*, I found iodoform highly recommended for such cases as I have used it in with apparently good results, and I expect to further accomplish myself in the use of this class of drugs, which are at present receiving so much attention from all branches of the medical profession.

PRESIDENT'S ADDRESS.*

DR. R. W. WARNER, ST. JOHNSBURY, VT.

Gentlemen of the Vermont State Dental Society, Greeting:—

THE edict has gone forth that the presiding officer shall deliver an address. The law, like that of the Medes and Persians, is unchangeable. Therefore I am before you, and will endeavor to comply in as brief a manner as possible and not consume time that rightfully belongs to others. It has been my privilege, with two exceptions, to be present at every meeting of this society since it was organized, in March, 1877. At that time the dentists of this State were called together by Dr. Baker, then of Woodstock, to whom we are largely indebted for his untiring zeal in pressing upon the minds of the profession the importance of an organization. Amid many discouragements, and single handed, with the perseverance and patience for which all dentists are noted, a permanent organization was established. I believe I simply echo the sentiment of this society, in thanking Dr. Baker for his untiring perseverance and success, where there had been a previous failure.

Since the organization of this society, 75 dentists of this State have enrolled their names as coöperating with us, also quite a number from other States are honorary members, who have heard the Macedonian cry "come over and help us," whose presence we fully appreciate. On the coat of arms of this State we have this motto, "Freedom and Unity." These are essential elements to progression, and when applied to professional life, it means freedom of thought to explore new fields, and unity makes all discoveries the property of the whole body. These elements are the soul of professional association, out of which may be developed a high grade of professional ability. To the associated influence of this society we are largely indebted for the rapid progress made in professional skill and intellectual culture, which none can doubt who are acquainted with its inner workings.

It is essential that our meetings should be instructive and practical. Our annual meetings should be a professional exchange

* Read before the Vermont State Dental Society, March 21, 1889.

of modes and means in practice by which we progress in our profession. These opportunities are invaluable to all, and none can afford to neglect these annual gatherings. It is in these meetings that we can compare notes and select and incorporate into our practice that which has proved the most successful in the practice of others. The most efficient means of elevating the status of our society is to educate and elevate ourselves. I think it is safe to say that every member here has at least one good idea or some little device that has helped to make his operations more successful and less laborious. Interchange of thought and modes of practice stimulate activity and lead to new and better methods. "Give and it shall be given," is the immutable law of progression in nature, science, and religion. He that is indifferent to obtaining knowledge and miserly in giving is sure to get left. He who withholds professional knowledge for selfish ends is unworthy of his calling. The time is passed when professional men are honored in withholding from their professional brethren new discoveries that are incidental to daily practice. There is no royal road to success; the way is open to all, and plenty of room at the top.

We should be one in interest, to elevate the profession by intellectual culture and gentlemanly deportment, and professional skill that will command the respect of the public. In conclusion; we are encouraged in our professional duties as we meet from time to time and grasp the friendly hand, and look into the honest faces of our professional brethren. In Gravill we find this truism: "By communicating our grief we have less, by communicating our knowledge we have more." Let us magnify our calling and enhance our usefulness by a free exchange of thought, discarding all action that is dishonorable and unbecoming to professional gentlemen.

OBTURATORS.*

BY JAMES LEWIS, D.D.S., BURLINGTON, VT.

IN my paper to-day, I shall not take up your time in describing the defects in the palatine organs, as you will find that part

* Read before the Vermont State Dental Society, March 21, 1889.

of the subject described in the various books and journals.

I shall merely describe the various processes, first, how I took the impression of the parts, then the various processes in making the plate and "uvula."

The case which I shall describe was congenital.

I took the impression of the jaw and hard palate in wax, cut off the wax which pressed up into the nasal cavity, then set in plaster, from which I made a trial plate, in wax, which would reach back just to the junction of the hard and soft palate, I then made a gold hinge, almost as wide as the fissure or cleft in the palate. The ends of the hinge I made a little over a quarter of an inch long, punched three or four holes in each end, so that it would hold secure in the rubber when vulcanized. Then I set the trial plate in plaster with one part of the hinge secured in place by a wire running through the hinge, with the end set in the plaster. After vulcanizing, I finished the plate and fitted it to its place in the mouth. Then I attached the other part of the hinge, to that vulcanized in the plate. To this part of the hinge I attached a *very thin* piece of brass plate, which I made to project forward far enough to prevent the back part from falling on the tongue. This strip of brass I bend just the shape I want the lower surface of the uvula. This strip of brass I covered over with a very thin sheet of gutta percha, which I made just the width and form that I wanted for the lingual surface of the uvula. After forming this I placed cotton on the upper surface and worked into the form as near as possible which I desired, then covered this cotton with a very thin coating of wax. This cotton and wax I formed so as to project over the superior surface of the velum, or palatal muscles. This must be done with care. I also made a slight projection on the under surface. I endeavored to make all as light as possible, and by laying it in the mouth and changing it where necessary and talking with my patient, until everything was satisfactory, I removed all from the mouth and withdrew the pin in the hinge to separate the parts. Then set this model in plaster, with the lingual surface up, also run a wire through this part of the hinge in order to secure it in the plaster. This should be done in order to secure the exact axis of all, or both parts when finished.

After separating the plaster cast, remove wax, brass, etc., then take very thin sheet of gray rubber—as this is much lighter

than other rubbers—cut in sections to fit every surface around this cast. The rubber over and under the palatal muscles and about this part of the hinge must be thicker, in case it should need slight changes after finishing. Secure all parts of the rubber together, then put in two or three drops of water, place the last covering of rubber in place and screw the flasks together and vulcanize. After finishing this part, I secured the parts together with a gold pin.

If care is taken during all the manipulations, everything will result well, and need but very little changing. It will be necessary to place a spring on the upper surface of the plate, and a staple in the uvula just back of the hinge, to prevent the uvula from falling on the tongue, but made so that the levator palati muscles can move this artificial uvula with ease.

TIN AND GOLD AS A COMBINATION FILLING.*

BY G. H. WELLS, D.D.S., ST. ALBANS, VT.

WE all, as members of the dental profession, have long been searching for some *perfect filling material*, and thus far with rather indifferent results.

Let us first define the requisites of a perfect filling material.

To be an *ideal filling* it must possess the following qualities: an easy adaptation to the walls of the cavity, moisture proof, color of the teeth, hardness, so as to stand wear, cohesiveness, to be strong, a poor thermal conductor, non-irritating, non-oxidizable, and must be one that is unchangeable. These properties may be simplified as follows:

1. Adaptability.
2. Impenetrability.
3. Indestructability.
4. Non-irritability.
5. Non-conductability of temperature.
6. Harmony of color.

We have many filling materials that possess some but not all of these qualities. Gold would head the list as possessing more of them than any other single filling material. The next

* Read before the Vermont State Dental Society, March 20, 1889.

would be amalgam, which all things considered, might be questioned as to being ahead of tin. Lastly comes the cements and gutta-percha.

Considering gold, the leading filling material, we find it possesses the first requisite, adaptability to a fair degree. Non-cohesive, or soft gold, more than cohesive. In my judgment cohesive gold should not be used in the body of the cavity or against the walls, but for the surfaces and building out, only in cases where bridges are to be fastened by means of gold fillings.

In the *Dental Cosmos*, February, 1886, Dr. A. G. Bennet, of Philadelphia, says: "Some one remarks that it is difficult, if not impossible, to adapt two substances such as dentine and extra cohesive gold to each other so as to form a moisture proof joint; hence the necessity of having as much softness in the gold as is consistent with the required cohesion; and hence the necessity of an even, smooth wall. For, since adaptation to such a wall is difficult, it is obvious that it is well-nigh impossible to adapt gold against rough, uneven surfaces. It is clearly impossible to force gold into the minute inequalities of dentine and enamel. In short, as some one has said, a filling should resemble a cork in a bottle rather than a ground glass stopper."

Though the essentials of successful tooth filling are more or less familiar to all, yet, as a basis for what is to follow, they will bear repetition. "It has been said," remarks Dr. Atkinson, "that almost any one can make a filling moisture tight; almost nobody does."

If the cavity is properly prepared you will have no difficulty. "The expert few may have no difficulty, but the unskilled many, even with a perfectly prepared cavity, will often fail of success." In the approximal cavities of the incisors the fillings can be started, and the larger part of cavities filled with semi-cohesive gold cylinders without making any retaining points which I think a bad practice, as these points must be made at the labial and lingual cervical corners, thus weakening the enamel at these points, as well as cutting off the nourishment at two vulnerable points. Using these cylinders the slight groove cut upon the cervical part of the cavity is deepened at these corners a trifle to prevent rocking of the gold before it is thoroughly anchored, carrying the cylinders over the edges, cohesive gold is then added to give the contour which needs strength and hardness. The

approximal cavities of the bicuspid and molars should be filled by the same principle; having slight grooves upon the two sides and cervical border, neither deep nor with sterling points, using soft gold or semi-cohesive cylinders at the cervical border and building the knuckle with cohesive gold. I can fill more rapidly using No. 4 soft gold in the form of ropes and pellets, then adding cohesive gold adding No. 60 foil for the occluding surface, which should be solidly packed with a mallet. We all are partial to the mallet that we are accustomed to use. I have used the automatic, mechanical, and electric mallets, and much prefer the automatic and electric. I find that the oft-raised objection of taking care of a battery and its liability of getting out of order is really no greater than the care of one's engine. I would much prefer taking care of a battery to keeping my engine oiled and clean.

To sum up, gold can be adapted to the walls of the cavity, but requires considerable skill and time. It is impenetrable, indestructable, non-irritating, in color fair, not perfect, and instead of being a non-conductor of thermal changes it is the best conductor known.

Next we will consider the qualities of amalgam. As to its adaptability, it is without fault. It is impenetrable, and as to its indestructability, the edges are liable, in fact are often destroyed or broken away. It suffers by either expansion or contraction. It is non-irritating and a fair conductor of thermal changes. The color is very poor, in fact it does not average with gold. Copper amalgam would be the same as the ordinary amalgam in all but the third requisite, indestructability, it neither shrinks nor expands. Its color forbids its use in the anterior part of the mouth. Dr. W. D. Miller, of Berlin, instances several cases where, after five or six years, these copper fillings seemed to wear away in the same manner as cement fillings. But he considers them as better than the ordinary amalgam fillings.

Next will come *tin*. It possesses adaptability. Its impenetrability is not as good as gold or amalgam. In regard to indestructability, it wears away. It is non-irritating, also a poor conductor of thermal changes, and its color is poor. Gutta-percha and the cements I consider as temporary, though possessing some of the qualities of a perfect filling material, they are lacking in others so cannot be depended upon for any length of time. We thus see that no one material answers all requirements.

Now comes the question, can we combine any of these to make a more perfect filling? Dr. D. M. Clapp, of Boston, would say if he were here, that we could. By filling the cervical part of the cavity with amalgam and building gold upon this that we can nearly reach perfection. That we obtain the adaptability of the amalgam at the most difficult part of the cavity to fill, and that the edges here will be strong enough for all practicable purposes. In this I do not agree with Dr. Clapp; he holds that the edges do not give away only upon the occluding surfaces or where there is force exerted upon the filling. I think you all will bear me out when I say I have seen amalgam fillings whose edges are broken away upon the proximal as well as the occluding surfaces. I do not mean upon the cervical border, for here I think the amalgam more generally overlaps the edges, as the tooth at this point dips in between the palatine and buccal corners, so that, if we do not use a cervical trimmer at a subsequent sitting to cut this away, we have the filling extending squarely across from one prominence to the other. But at the sides of the filling at the proximal surfaces I have found amalgam with broken edges and leaking. In fact, I have repaired approximal amalgam fillings upon the sides when the occluding surface was good. Especially have I found this so with the bicuspid teeth. Dr. Clapp gave as a strong point in favor of gold and amalgam combination fillings that the weakest point of an amalgam filling was the occluding surface, as the edges become broken by the force brought upon them, so that by using gold here he avoided this danger. True, but does this change the liability of the amalgam edges chipping upon the proximal surfaces? I cannot see how it does. At the time of union between the gold and amalgam the amalgam is weak and brittle, though this is temporary, for after becoming crystallized it is *strong*. This combination more nearly fulfills the requirements of a *perfect filling* than any we have had thus far. But is it the best? I think not. I consider the best combination to be "tin and gold." It not only withstands the tests of gold and amalgam, but possess other properties that are beneficial.

Gold and tin as a combination filling was first used by Dr. Frank Abbott, of Berlin, about 1851 to 1854, who was the first to recognize the superior qualities of this over all other filling materials and introduce it to the profession as such. Now what

advantages have this combination over a solid gold filling, or a combination of gold and amalgam? First, it can be packed more rapidly than gold and with about the same speed as amalgam and gold, and with a certainty that it will be as well adapted to the walls as amalgam. Using either combination, gold is added, when partly filled. With this amalgam Steurer's gold must be used. The mercury at first takes up the gold as fast as it is placed upon the amalgam, without seeming to add anything to the filling, but soon small points of gold begin to show which gradually increase in size until the mercury is satisfied. When this is accomplished any of the usual forms of gold can be used. While the mercury of the amalgam is being satisfied one can make up the time lost in packing the tin. Then adding two or three pieces of cohesive gold foil to form a union, whereupon any form of gold can be used. So that in time there is no gain of the amalgam over the tin combination.

Here allow me to present my method of using a tin and gold combination filling. Let us suppose we have a large anterior approximal cavity involving the occluding surface of the first superior molar. After breaking in the frail walls of the cavity and partly shaping it with a chisel, we can now remove the soft decay with a spoon excavator. Next apply the rubber-dam, not using a clamp if it can be avoided; but if necessary I find Dr. Delos Palmer's the best, which has a clamp for each tooth (these being neither heavy nor coarse do not impinge upon the gum) and are less liable of rocking. These I find rather small for large teeth, so I had some made larger patterned after these. With the rubber-dam in place and cavity dry the white decalcified enamel will be seen to a better advantage. Shape the cavity with burs and getting a firm foundation of enamel around the cavity, with no angles but in easy curves. This is important as angles left at the two corners are hard to fill, and if thoroughly filled take time. Having gained a firm wall of enamel, bevel slightly out and proceed to remove the decalcified dentine, this will probably give all the undercuts necessary to hold the filling.

The cavity now being prepared (with no angles) the matrix is then adjusted. I find as a general thing I can make a matrix more adaptable than any what can be bought. Have a piece of brass rolled thin and cut a piece to suit each case. It can be made to go high up at the cervical border without impinging upon

the gum at the sides and will be the right width. I think those for sale are generally too wide so that the light is dimmed, besides having to reach over the matrix. Fasten the matrix by winding silk around it and the tooth, a thin narrow wedge can be placed at the cervical border if necessary. The matrix being in place closely adapted to the edges of the cavity, still so that it can be forced out with a plugger. Use No. 4 tin foil folded to No. 16 thickness. I prefer extra tough as the surface is the least bit granular, so that I think a stronger cohesion can be obtained. Cut the foil into strips of different widths. In this form it can be packed quite rapidly, and when built up as far as desired add annealed cohesive gold foil and then proceed as with any gold filling, burnish the tin before using strips and it is well to burnish again during the finishing. But if the matrix be well adjusted there is little burnishing to be done. I believe it was said at our last meeting, in answer to an inquiry, that there was no union between the tin and gold so undercuts were necessary for the anchorage of the gold with no reliance upon the tin. There is a strong union between the gold and tin as you can see by the specimens being passed around, so that one can depend as much upon the union with the tin as with the amalgam. The time of packing either being about the same.

What advantages has the tin combination over the amalgam? First, in finishing after using the strips and disks there will be no danger of forcing a cervical trimmer in beyond the edges of the enamel at the depression between the palatine and buccal corners, which might happen to an amalgam or amalgam combination filling which a strip will not reach.

Second, there is no danger of the edges of the tin giving away upon the approximal sides.

Third, there seems to be some electrical action which is of benefit to the tooth.

If one of these tin and gold fillings should be cut into we would find that there has been some decided molecular action at work. The tin beneath the surface will be darkened and in a sort of granular form. The dentine beneath this being considerably darkened and harder than normal dentine. Hence, it is not proven that this combination filling has some beneficial action upon the dentine, seemly to stimulate some kind of secondary calcification of the dentine making it much harder and less susceptible to the recurrence of decay.

Fourth, with this combination there is little danger of secondary decay. Prof. Darby recommends this as the best filling for saving the teeth. In fact, he says, "I have never seen decay start around a good tin filling." *Surely this* cannot be said of any other filling material either single or in combination, except the cements which are not to be considered here.

I can now think of a case where a lady had a number of teeth filled when young, and when she came under my care I discovered but one filling that was preserving the tooth and that was a *tin filling*. All the others, which were amalgam, were loose or there was decay around the margins.

At the commencement of this paper the requisite qualities of a perfect or ideal filling were given. We will now see if the *tin* and *gold* combination does not answer more of these requisites than any other single or combination filling. It is adaptable, impenetrable, indestructable, non-irritating, a poor conductor of thermal changes, and the color is as good as any filling. It excites or stimulates some action in the tooth substance so that it is less susceptible to secondary decay. Thus we find that a tin and gold combination filling answers our purpose in more respects than any other single or combination filling.

A CASE IN PRACTICE.*

BY R. M. CHASE, D.D.S., BETHEL, VT.

MR. P—— presented himself with face badly swollen and a copious discharge of pus from the fistulous openings in the gum of the superior maxilla. The gum was badly affected and upon passing a probe found the alveola process ragged and necrosed. Upon questioning my patient said he had been treated by two physicians for eleven weeks, but was gradually failing in general health, and was quite discouraged. All the teeth and roots had been extracted except a wisdom tooth on either side. Upon questioning him of the early history of the case, said he had "gum boils" and finally his teeth loosened and he pulled them out. His physicians had extracted the bicuspid and molars.

His family history gave no syphilitic taint nor had he worked near phosphorus. He had one leg broken twice and one hand

* As related by R. M. Chase, D.D.S., at the Vermont State Dental Society, March 22, 1889.

badly injured, losing at that time one finger, all of which healed kindly. He further stated that any cut or bruise would heal without much or any attention, showing a good constitutional diathesis. With this history for a favorable prognosis I commenced treatment, the only immediate danger was septæmia.

I prescribed for a tonic—

| | | | | | | |
|---|----------------------|---|---|---|---|--------|
| R | Tinct Ferri Chloride | - | - | - | - | 3vj. |
| | Quinino Sulph | - | - | - | - | 3j. |
| | Aquar | - | - | - | - | 3vjij. |

M.

Sig.—Teaspoonful in $\frac{2}{3}$ glass water after each meal.

For local treatment I opened freely into the gum and injected peroxide of hydrogen full strength in conjunction with this to be used several times per day, dilute phenol sodique. This treatment was followed up one week, each day. At the end of that time a marked improvement was made in his general health. Same treatment kept up for another week, except I changed to listerine for a mouth wash. At the end of three weeks the swelling had gradually decreased and physically improved. I extracted the wisdom teeth and made an incision on the left side over the alveoli, exposing the alveolar border, which had commenced exfoliating, I removed large sequestrum of bone and directed him to come in three days, in the mean time he followed out the local treatment. At the end of that time I operated on the right side with former success, at the end of three days more I removed the remainder of the necrosed bone which included the whole alveolar process. I discharged my patient, asking him to return in one week, this he did. Granulation of the pus had commenced, with local swelling gradually disappearing. I did not see him again for four weeks. He had resumed work and was rapidly recovering. I did not see him again for six months, when he returned with a view to having his upper teeth extracted. Upon examination of his mouth found his former trouble entirely well, minus the alveolar ridge. The good results obtained by the use of peroxide of hydrogen in this and other lesser cases of necrosis of the alveolar process, leads me to recommend it as a remedy par excellence in the treatment of alveolar necrosis.

EXTRACTION OF DECIDUOUS TEETH.*

READ BY G. H. SWIFT, D.D.S., MANCHESTER.

QUITE recently there have appeared in the reports of papers and discussions before dental societies, opinions expressed upon the extraction of the deciduous teeth which are so much at variance with the author's experience and observations, that he ventures to put his views in the form of an essay.

The views which he deems erroneous have shown a misconception of the order in which the temporary teeth are shed and their places supplied by permanent ones, and also in the idea which has been entertained that the premature removal of the deciduous teeth caused a shrinkage of the jaw, and created an irregularity in the permanent dental arch.

It would hardly seem possible, in view of the researches of the last quarter of a century, that any educated dentist could hold any other than one opinion, or that it should be necessary at this time to correct any erroneous impressions. Two or three illustrations will serve to show the errors alluded to.

A gentleman of well known eminence in the profession was describing before one of the societies his method of caring for children's teeth, when he said among other things, "that as soon as there was any evidence of the eruption of a permanent tooth he removed the deciduous tooth to give it room. Beginning with the central incisors, which were the first to make their appearance, if the removal of the centrals did not promise ample room for their successors then he also took out the lateral incisors. If when the lateral incisors emerged there appeared to be a lack of room, he removed the temporary canine—following this, if the permanent canine when it appeared showed a want of space, he removed the first temporary molar, and in like manner, and in their turn according to his plan, the second temporary molar was removed to make room for the first bicuspid, and finally, if there was not room in the dental arch for the second bicuspid he extracted it, and by this course of procedure he was always able to

* This is a paper which was read before the New York State Dental Society in 1883 by N. W. Kingsley. Taken from *Independent Practitioner*.

secure a perfectly regulated dental arch in the second set, or permanent teeth."

This is the teaching of one who holds no mean place in the estimation of his fellow practitioners.

Another gentleman, occupying also a prominent place in dental societies, says that in his treatment of children's teeth, when the time arrives for the shedding of the temporary tooth he extracts it to give the permanent tooth a chance, regardless of any evidence that the permanent tooth is ready to erupt. He extracts when the period arrives for the permanent tooth to erupt, because he holds that its eruption is retarded by the continued presence of the temporary one. And again, another gentleman whose exalted attainments have been conceded for a generation, maintains that the premature extraction of temporary teeth involves a contraction of the jaws. It is not an error in the use of terms that he makes (using the word jaws when he means alveolar processes), but he refers to a contraction of the jaw bones themselves.

These examples are sufficient to illustrate the object of this paper, for in the opinion of the writer each and all are erroneous.

Beginning with the last, it is a settled fact that the development of jaw bones and alveolar processes are entirely independent operations of nature.

There is a period in the history of the jaw when it is as much a jaw bone as at any subsequent time, and before a tooth has made any appearance. If through any freak of nature no tooth ever develops, the jaw will in no respect be aborted in its growth. It will continue to thicken and elongate in the case of the lower one, and widen and enlarge in the case of the upper, until it has reached the full measure of its inherited type, and neither the absence of teeth congenitally nor their removal after development will interfere with this function.

But in the growth of the alveoli as a process of the jaw we find an entirely different condition.

Alveolas are the result of the development of the teeth and coincident with their growth. The alveolar processes to a certain extent are constantly changing. It is quite doubtful if a single bony particle of the alveoli of adult life formed the part of the alveoli of childhood.

In a purely physiological condition it is forming and absorb-

ing—forming again and again absorbing—and again a third time forming, only to be absorbed again when the final issue arrives of the loss of the teeth.

In a pathological condition this process of formation and absorption may go on repeatedly.

The mistaken idea of the shrinkage of the jaws must certainly be based upon changes which are apparent in alveolar processes, but which *do not involve the jaw*.

That the premature extraction of the deciduous teeth involves a contraction of the jaws is a mistake, and to a limited extent is a misconception that such extraction will involve such contraction of the alveolar arch as will induce irregularity, either in the period or order of eruption, or the arrangement of the permanent set. This is true as applied to sixteen out of the twenty teeth that make up the complement of the deciduous set.

The order of shedding and of eruption shows that the first to change places are the central incisors; secondly the lateral incisors; thirdly, *not* the canines, but, frequently the second molar for the second bicuspid; fourthly, the remaining molar for the other bicuspid, and lastly the canines.

In a normal condition the jaw bones *continue* their growth *after* the growth of process about the temporary teeth has ceased, and thus as the period approaches for the eruption of the permanent teeth we find spaces between the temporary ones, thus enlarging the alveolar arch for the accommodation of the larger members of the permanent group.

The growth or enlargement of that part of the jaw upon which the deciduous dental arch is situated seems to have obtained its complete development at the period of shedding, and the incisors and bicuspid will find room equal to their necessities.

The premature extraction of any or all even of these eight named teeth, will not interfere with the natural and expected enlargement of the jaw, but the premature extraction of the canine teeth will be likely to lead to most serious results.

After the jaw bone has ceased its enlargement there seems an almost universal tendency for the bicuspid and molars to crowd to the anterior part of the mouth, and to fill any space in the alveolar arch that may not already be occupied. This is not only true in the formative period, but is equally true in adult life, if the occlusion of the opposing jaw does not counteract it. The

consequence of this inevitable tendency is, that unless the temporary canines remain in their places until their permanent successors are ready to emerge, the bicuspid and whatever molars are behind them will crowd forward and occupy the space which belongs to the canines.

We thus see that whatever may be the inducement to remove any or all of the deciduous teeth prior to their period of shedding, the canines should be retained until there is ample evidence of the early emergence of their permanent successors, unless the health and comfort of the child would be sacrificed in so doing. But it would be far better to remove one or all of the deciduous teeth and take the risks of irregularity in the permanent ones, than to submit the child to constant suffering and consequent injury to its health by their retention.

In a case of retarded dentition the writer takes issue with the practitioner who removes the deciduous teeth when the usual period arrives for shedding, regardless of any evidence that the permanent ones are ready to erupt. *His* reason is, that the retention of the temporary tooth retards the growth of the permanent ones.

In this issue is involved the function of absorption, and his practice would indicate that the non-absorption of the temporary tooth was the primal cause of the retarded dentition, rather than that retarded dentition is the cause of the non-absorption. Cause and effect are in his mind evidently transposed.

Such a practice will unquestionably lead in many cases to serious results.

It is not always certain, when there is no outward indication, that a tooth lies concealed.

It is not a very uncommon thing to see some one tooth of the permanent set missing, and to learn that it never erupted. And again, a retarded dentition generally indicates teeth of better organization and less liable to decay than those which have developed at an earlier age.

So long as deciduous teeth remain in the jaw in a firm and undecayed condition, with no evidence of a misdirection of their permanent successors, it is not advisable to remove them.

SUCCESS.*

BY ALLISON J. PARKER, D.D.S., BELLOWS FALLS, VT.

How may I succeed in life? is the interrogation of every ambitious man, when starting out for himself. This answer suggests itself to the inquiry, choose the business or profession that will yield the largest returns. The choice made, he thus pulls every string that leads in the direction he has chosen to travel, by consulting well the catalogue of requirements and counting the cost of preparation, he is able to qualify himself accordingly, he may learn ever so well and perfectly the theory of that business, and yet be unqualified to pursue it, he is practically wanting and unsuccessful. Books are well and necessary, but alone they only display the skeleton of reality. The blind may enjoy the beautiful description of color, but in reality know not what it is. Books teach how to make a gold filling, use the rubber dam, matrix, excavators, pluggers, take an impression, make models, and in fact the whole process of plate making. But all this without the actual practice as experience is useless, as the color description to the blind, it does not guarantee success. Experience can be beautifully illustrated by words, but until we have had experience we cannot fully comprehend its meaning. People *look* at pictures. Artists read them. I may give in theory the description of a person, but my idea and yours may not be at all alike, in that I have seen the person and you only have the description in words.

So to be a success we must have the actual coupled with the descriptive. This life at most is short, and we as men of progress cannot afford to lose a single opportunity of making of ourselves all that the God who created us intended. By this means that we should never close the eyes on those thoughts. How can we best succeed as men, as dentists and as a dental society? As men we shall succeed if we are honest with ourselves and this means honest with the world. Thus shall we seek the noblest things of life, we shall aim high and toward things which shall not leave a blank behind us at last. As dentists in sparing no pains in qualifying ourselves to do the work assigned to our professions, in

* Read before the Vermont State Dental Society, March 21, 1889.

being in love with our profession, never wearying in trying to make each operation better. Again, in trying to make the dental office attractive, a place that people will associate with happy thoughts, and thoughts not degenerate, many think of it as a place of torture, a place to be shunned, and held in dread, a shop, etc. As dentists all of the prime factors of our success consist in being able to *control ourselves*. Thus may we control and guide those intrusted to our care, they seeing that we have confidence in ourselves, the more completely confide in us. In so doing we may enjoy a most pleasant and profitable practice, ever increasing through the best recommend we can possibly obtain. Dentistry has come to this that only the fittest can survive, and with the many thousands of dentists in the United States and all that are forthcoming, only those that are at the top round of the ladder can stand. The statement has been made that only about one-half of the yearly graduates in dentistry remain in practice more than one year, because they become reckless and rattle-brained and neglect their business until they have no business as dentists. A business well attended to will make business for itself sufficient for the demand, whether it be of vice or laziness, or whether it be truth, enterprise and ambition. The crop or harvest will be of the same kind as is sown. The world is rushing on, as it were, at a maddening headlong speed, and we as dentists have got to clutch quick at the handles of time, in order to keep in equal pace. No business is without its trials, and at times I am led to think that we as dentists need a helmet of iron to be able to resist the fiery darts that assail us. At such times the self control must assert itself, we to all appearances must be proof against the arrow and like the dove try to conceal it, though it may hiss and sting in the wound it has made. As dentists we should seek to gain the confidence of the children, never break confidence with a child to please the parent, is my motto. I have been requested to deceive the child many times by doing what I promised them I would not. I always think that as the child may grow so would the impression made on that young mind grow, whether it be deception or truth. If we have the children for us we shall have the parent. Thus may we sing we have gained the victory. Lastly, as a dental society, each member should seek to discharge the responsibility resting on him in making it a success, by attending as many of its meetings as

possible and not let trivial affairs as the expense keep him at home, and by an extra effort we will be able to show to the world that we are a body of men worthy their notice, seeking to enlighten ourselves as a dental society in the salvation of the teeth and as iron sharpeneth iron so may we sharpen each other. For one I feel it pays to leave my business once in a year to attend these meetings, and I consider that in the end I shall not lose money by it. Our patients watch us and if we do not try to become better qualified and grasp everything that will help us to do better work, then they begin to think us narrow minded and selfish and will cease to patronize us, they expect our best work for their money and they will never complain of the cost to keep their teeth in order if they do not think we are cheating them. It does me good physically to attend these meetings. I not only can grasp the hand of my brother in dentistry and compare notes with him, but it is a change, I see new things, hear new ideas advanced and withall obtain rest from what I see nearly every day during the year.

VERMONT STATE DENTAL SOCIETY.

THE Vermont State Dental Society held its thirteenth annual meeting at Montpelier March 20th, 21st and 22d. It was one of the best and largest attended meetings ever held, about seventy dentists present.

The papers read were interesting and brought out lively discussions.

The paper read by Dr. Wells on Combination of Tin and Gold (see page 274) received a good discussion, extending to the combination of gold and amalgam and on to copper amalgam. Dr. Young, of New Hampshire, said he made a great many combination fillings, but that his combination was gold and gold, using soft or unannealed gold at the cervical wall, and thought equally as good or better results might be obtained by using gold in this way.

Dr. Baker, Boston, said his combination fillings were gold and gold, he using non-cohesive gold at the cervical wall, and claiming, as did Dr. Young, better results than could be obtained with gold and tin. The paper showed a great deal of thought

and care in preparation. Dr. Wells also exhibited several beautiful specimens of his gold and tin fillings, in one or two of which the reporter has tried with an excavator, to separate the two metals but has been unable to do so.

Dr. Davis' paper, *Some Results obtained from the use of Iodoform*, (see page 266) was discussed at some length, nearly all agreeing with the essayist regarding the good effect of iodoform, although some had discarded it entirely on account of its odor, while others used iodol in preference taking the same ground against iodoform.

Dr. Van Woert spoke of iodol in his practice and the good results obtained, giving a formula for a paste for filling pulp canals, of which iodol forms an important part:

| | | | | | | | | | | |
|---|------------|---|---|---|---|---|---|---|---|----------|
| R | Iodol | - | - | - | - | - | - | - | - | gr. x. |
| | Oxide Zinc | - | - | - | - | - | - | - | - | grs. xx. |

Vaseline Carbolic, to make a stiff paste.

The Doctor claims the paste to be superior to gutta percha, oxychloride or oxyphosphate of zinc.

Dr. Baker, of Boston, who, thirteen years ago, got twelve or fifteen dentists of the state together in the same room in which the present meeting was held, and organized the Vermont State Dental Society, which now has a membership of seventy-five, three-fifths of the dentists in the state, was very enthusiastically received, and gave a very interesting and instructive address upon "Physiological Treatment of Cleft Palate." (See page 257). Dr. Baker had one of his patients with him who had worn an appliance for cleft palate only four weeks, making the subject doubly interesting. This patient, with the obturator in place, spoke very plainly and I think would not be detected except by a close observer, while without it, he could hardly be understood. Dr. Baker said of this patient, while not the best, he had made rapid progress in speech.

Dr. R. M. Chase gave his treatment of an interesting case of alveolar necrosis (see page 280) where the whole process of lower jaw was involved and was exfoliated, exhibiting the bone.

Dr. Russell, of Keene, N. H., gave a clinic showing his method of setting porcelain inlays which was very beautifully done and showed it to be very neat, and I think very practical work for labial cavities that are nearly round. He prepares his cavities with inlay burs, without any undercut.

For the inlay he uses porcelain cylinders which are prepared by the S. S. White Dental Manufacturing Co. He fits one end of the cylinder to a paste polisher and cements it firmly with jewelers' cement. He then holds the cylinder against a corundum wheel which is revolved in an opposite direction.

When fitted the cylinder fits the cavity like a ground glass stopper in a bottle. He then cuts a groove around the cylinder with a diamond disk and smears it with thinly mixed oxyphosphate of zinc cement and quickly places it in the cavity breaking the inlay off at the groove, then allowing the cement to become hard, after which he grinds and polishes the inlay flush with the tooth.

Dr. Van Woert, of Brooklyn, N. Y., demonstrated his method of making solid gold tips for abraded teeth.

He first prepares the tooth, using a facer of his own design, with a long tit. The tit enters the canal which has been previously bored. The instrument forms a perfectly flat surface. He next forms a matrix of thin platinum plate about the shape he wishes the top, into which he melts gold plate or foil. To the centre of the tip he solders a pin and removes the matrix and shapes with corundum wheels. He now uses a facer which instead of a tit has a cylindrical hole in the centre, and allows the instrument to fit over the pin and face the under side of the tip. The surface of the tooth and tip being made by analogous instruments, a perfect joint can be obtained. He cements the tip in place with oxyphosphate.

Dr. Van Woert also demonstrated his way of bridging a tooth to sound teeth on either side.

He backs up a plate tooth, and melts gold on to this backing until he gets nearly the shape desired, then finishes with corundum.

He now puts the tooth in place and waxes to it two thin strips of gold, invests and solders the strips to the tooth. He now finishes for the final setting by placing a little oxyphosphate cement under the strips and draws them about the sound teeth, drilling holes through the strips into the teeth and putting in screws, which makes, to all appearance, a good substantial bridge.

The officers elected for the coming year are: President, W. H. Spencer, Poultney; First Vice, G. W. Hoffman, White River Junction; Second Vice, W. S. Curtis, West Randolph;

Secretary, Thomas Mound, Rutland; Treasurer, W. H. Munsell, Wells River; Ex. Com., George F. Cheney, St. Johnsbury; J. A. Parker, Bellows Falls; C. F. Tinker, St. Johnsbury. The meeting adjourned to meet at Bellows Falls the third Wednesday in March, 1890. G. F. C.

Correspondence.

"I charge you that this epistle be read."

ALUMNI REUNION OF THE UNIVERSITY OF MICHIGAN—DENTAL DEPARTMENT.

TO THE EDITOR OF THE OHIO JOURNAL OF DENTAL SCIENCE—
Dear Sir:—Will you kindly publish in your Journal the enclosed circular for the benefit of your readers who are graduates of the University of Michigan, as it is the desire of the committee to bring this matter before all alumni of that institution. By so doing you will confer a great favor on

Yours truly, L. L. DAVIS, D.D.S.

At the annual meeting of the alumni of the University of Michigan—Dental Department—held in Ann Arbor, June, 1888, a committee was appointed to take steps toward securing a large attendance at the next meeting in 1889, and in accordance with that intent, the committee beg your earnest coöperation, by your presence at the meeting, and by your sending the addresses of those alumni with whom you are personally acquainted, together with your own, to the above address. The committee ask that these addresses be forwarded at once, so that each alumnus may receive a personal invitation, for, owing to removal, many of the alumni have been lost sight of, and the list is far from perfect.

At the meeting, which will be held during commencement week in June, 1889, a special reunion of all classes previous to 1880 has been planned, and as soon as sufficient replies to this circular are received to warrant the formulating of special-class exercises, the committee will communicate with those signifying their intention of being present, so that it may be known who will be likely to attend. A varied programme of a scientific and

social character will be prepared, and the exercises will close with a banquet.

An invitation is extended to classes graduated since 1880 to hold reunions at the same time, and the committee promise to gladly assist in their organization. The alumni meeting occurring during commencement week, will give those attending an opportunity to participate in the many social features of that occasion.

A prompt reply to this notice will lighten the labors of, and oblige,

Yours sincerely,

L. L. DAVIS, (Class of '84),

Chairman of Committee.

CHICAGO, May, '89.

QUERIES.

WILL Dr. Cook inform us how, in case of fracture of a tooth, in the bridge-work he describes in the May number, he proceeds to repair; all the steps including removal from the mouth? If he repairs by the continuous-gum process, what becomes of the pure gold he has flowed upon the back of the teeth? If the patient removes beyond his reach how could she secure its repair?

L. P. HASKELL.

Editor's Specials.

"Write the Vision and make it plain."

THE HEALTH OF DENTISTS.

WHILE there are general rules for the promotion of health that apply to all avocations, yet each calling in life has its own tendencies to disease and death, and hence, special rules and precautions are called for, to suit the various crafts that pertain to active life.

It seems to us that very many dentists die young, and very many are shut off by disease, from active practice, and often become a burden to themselves and to their friends.

Some years ago, our special friend, Prof. W. H. Morgan, offered a prize of one hundred dollars for the best essay on the

Health of Dentists, the award to be made by a committee of the Mississippi Valley Association. We believe this elicited no response. The next year he proposed to renew the offer, and Dr. S. S. White joined with him, and, through the Association, on conditions, adopted then and there, they offered a prize of two hundred dollars. The committee was instructed to reject any or all, if not regarded as worthy of the prize. No prize was awarded, and we believe the matter was dropped.

This shows that the subject has not been entirely forgotten, but it is almost strange that it has not received more attention.

In all in-door occupations there is danger of a lack of proper ventilation. But the dentist has this, in addition, that he must, to a greater or less extent, breathe the exhalations of his patrons. Of course the patient inhales his breath, but he is pitted against a dozen a day, more or less. The patient leaves the chair and goes into the open air, while he goes to the next patient, whose breath may be still worse. Bear in mind that in the best of constitutions, the breath is laden with filth and death. Of course the dentist should make extra efforts to get fresh air outside of office hours, and his rooms ought to be as well ventilated as possible.

The dentist works mostly in a standing position. This suggests corns, bunions, varicose veins, etc. And that he has to stand in constrained postures suggests spinal irritation, muscular rheumatism, *locomotor ataxia*, and a train of troubles too tedious to mention. We think nearly all dentists would gain patronage, as well as health, by a day, or two separate half days, spent in vacation each week.

It is hardly necessary to allude to the fact that the practice of dentistry tends to dyspepsia, if not to *phthisis*. Fresh air and exhilarating exercise are therefore indicated.

Hemorrhoidal troubles are more common with dentists than with physicians. They should guard against constipation by establishing regular habits.

But the day in and day out monotony of dental practice tends to general nervous prostration, and this explains, to a great extent, the early breaking down of so many in our profession.

Notwithstanding all said here, we believe dental practice may be followed by as good health as that ordinarily enjoyed in other professions. But proper precautions are good in any vocation. This little note is intended to call attention to an important subject too much overlooked.

LET US BE ACCURATE.

On page 93, February number of *Items of Interest*, is found the following statement in reference to the Deans of the Ohio College of Dental Surgery: "Prof. Smith's immediate predecessor, Dr. J. Taft, established the first dental journal of the world, *The Dental Register of the West*, and it is still one of the best. Dr. George Watt, another ex-dean, established, and is still the editor of *The Ohio Journal of Dental Science*, and a right royal magazine it is."

Now while feeling thankful for the compliments, we would call attention to some slight inaccuracies. The *Register* was not the first, but the second dental journal in the world. The *American Journal* was the pioneer. And the *Register* was not established by Dr. Taft, but by the Mississippi Valley Association. In 1853 it was transferred to Dr. Taylor, he sold it to Taft and Watt, in the spring of 1856, the transfer being completed at the close of the ninth volume.

As to the OHIO JOURNAL, we have all the time supposed that it was established by RANSOM AND RANDOLPH, and Dr. Watt is still *one* of its editors.

These things are not very important, but historical records ought to be reliable.

POST GRADUATE SCHOOL.

IN this issue will be found the announcement of a new departure in the way of a Post Graduate School of Prosthetic Dentistry and Dental Laboratory, with our friend Dr. L. P. Haskell, President. There is great need of just such a school where practitioners and students can acquire such thorough knowledge of prosthetic dentistry as the times demand, and with Dr. Haskell at the head we dare say it will prove a success. We call the attention of the reader to their advertisement, in this issue, which sets forth the object, advantages, etc.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

MALaise AFTER DENTAL OPERATIONS.—Antipyrin may be used with happy results in headache after prolonged filling. It leaves no bad after-effect. Patients will often get out of the operating chair with severe headache, which is relieved quickly by a 4 or 6 grain dose.

SHORT SITTINGS.—DR. PEIRCE urges the necessity for short sittings in the operating chair. One hour to one and a half hours is his limit except in very exceptional cases. Protracted operations not only weary, but exhaust, the nervous force of both patient and operator.

TO GRIND AND POLISH MINERAL TEETH.—1. Shape the tooth, or teeth, to any required form by grinding on a fine corundum wheel.

2. Smooth the ground surface with a polishing stone wheel.

3. Polish with superfine pumice on a buff, felt, or brush wheel.

Water to be used throughout the process.

COTTON AS A ROOT FILLING.—I am not in favor of the use of cotton pure and simple for filling nerve canals; if you use it in conjunction with resin, wax or oxychloride of zinc, the virtue of the operation must be attributed to these materials, and not to the cotton, which only facilitates their introduction. More depends oftentimes upon the intelligence, skill and delicate manipulation of the operator, than anything else; but you cannot hermetically seal a cavity with cotton alone.—DR. DWINELLE.

COCAINE IN DEVITALIZING PULPS.—I see frequent remarks on the subject of the devitalization of dental pulps, but I see no item that mentions the use of cocaine for that purpose. I seldom use nerve paste, and then only in cases of congestion.

I put on the rubber-dam and then use pure crystals of mur. cocaine with just water enough to moisten the cocaine, and after ten minutes, I remove the live nerve with less time than with nerve paste.

I seldom find it necessary to destroy the nerve, except in crown work, or when the nerve is badly diseased.—G. H. COLLINS in *Items*.

TO DISGUISE THE TASTE OF BICHLORIDE OF MERCURY.—The use of mer. bichlor. is now so common that any means that can be employed to disguise its very unpleasant taste should be hailed with satisfaction. With some patients the taste is most disagreeable and persistent.

For some time I have been using rose-water as a dilutent, and find it works well. I keep a one per cent. bichlor. solution ready prepared, and mix it with the rose-water when wanted—generally in the proportion of one part of the former to nine of the latter. Patients notice the change in taste of the “bug poison,” and speak of it very pleasantly.—GEO. S. ALLAN in *Int. Jour.*

SPYER'S GOLD-FORMERS.—During the flasking process, the pressure of the rubber upon the papillæ of these formers frequently flattens them, and so weakens the adhesive properties they should impart to the bearing surface of the denture.

Dr. D. Genese mixes plaster with thin mucilage, and carefully fills all the pits in the gold side of the former. This is then quickly adapted to the plaster cast so as to closely fit it without leaving any of the mixture between the former and the cast except in the depressions, where it will soon harden and stick the former to the cast at the same time, preventing the flattening of the little prominences by the pressure of the rubber during the closing of the flask.—*Cosmos*.

INSTRUMENT FOR PULP CAPPING.—In capping pulps I employ an instrument having a cup-shaped end, for use as follows: With a hollow punch, cut from thin tin foil a disk somewhat larger than the cup; lay the disk on a piece of soft rubber; place the mouth of the cup over the disk, press lightly on it, and its border will fold around the edge of the cup so that the tin cap thus formed will remain on the instrument. Fill the cap with cement and carry it to its place in the cavity of the tooth. The cap

adheres to the cement and remains in the cavity, allowing the removal of the instrument without displacement of the cap or contact of the instrument with the cement.—G. H. COLLINS in *Cosmos*.

EXTRACTING TO REGULATE.—We need not hope to improve deformities *at the front of the mouth* by the extraction of the first molars, *when there is a marked forward inclination of the front teeth, including the bicuspids*. The overcrowded front teeth will usually retain their position, owing to the increased bracing caused by the shortened bite. But if such overcrowding is at all relieved, it can only be by a forward movement which increases the forward projection of the arches, and the projection of a deformity worse than the one sought to be corrected. While admitting the value of extraction as a means of correction of certain irregularities of the teeth, I am forced to believe that far more irregularities have been *caused* by extractions than could ever have been *corrected by extraction*.—DR. DAVENPORT.

ARSENIOUS ACID POISONING.—When from any cause arsenious acid comes in contact with the soft tissues of the mouth, the ill effects become apparent in about twenty-four hours, the condition when seen by the dentist depending upon the time which has elapsed since the agent had been acting. At first there is only a slight soreness with some congestion; next small ulcers appear, which increase in depth, but only slightly in area. The irritant seems to drop to the bottom of the sore and keep up its action on the sound tissue beneath. The patients do not complain of much pain, only slight discomfort; and the ulcers are not painful when touched; but if the arsenious acid gains access to the periosteum the pain becomes intense.

The treatment suggested is as follows: Wherever practical, the soft tissues should be curetted. Scarify freely, and then touch the wound with carbolic acid or iodine, and if need be stimulate further in a few days with another application of the same.—DR. FAUGHT.

SAND PAPER DISKS.—Sand-paper disks having become so generally in use, it seems to me it would be convenient for dentists to be able to make their own. By the following method any one can make an instrument for cutting them.

Purchase a brass shell (cost about 7 cents), cut off the head or cap and bind to a cutting edge. Trim a piece of hard wood to fit accurately within the shell, pressing to within about a quarter or half an inch of cutting edge with a shoulder at upper edge. In the lower end of the stock place a pin exactly in the centre, size of hole desired in disk—a small wire nail is good for this purpose filed off square and allowed to come down even with cutting edge of shell. Lay your paper sanded side down on a block of wood, and as the disks are cut they will pass up on the pin, and when it is full you can remove the shell from the stick and take off your disks all ready for use.

For the different sizes you can get Nos. 8, 10, 12 and 16 shells, and each one you make will not cost over 7 cents.—J. R. RAYBURN in *Items*.

DESTROYING NERVES.—DR. BRYAN says: We have to depend largely on the prepared pastes sold at the depots. The difficulty in preparing a nerve paste consists in the insolubility of the arsenic, or the preparation of an impalpable powder. Experiments which I have made with an expert chemist have only resulted in our getting a fine powder by dusting it through a cloth, after long pulverizing in a mortar. With one part of this powder I rub two parts of antipyrine and lanolin, to form a stiff paste.

The lanolin, in a dry cavity, seems to penetrate the tissue, and to cause the antipyrine and arsenic to act, the first reducing actual inflammation of the part, and preventing further pain during the action of the arsenic.

A combination of—

| | | | | |
|------------|---|---|---|------------|
| Arsenic | - | - | - | one part, |
| Antipyrine | - | - | - | two parts, |
| Lanolin | - | - | - | two parts, |

makes a painless devitalization possible.

PREPARING THE MOUTH FOR FILLING.—The tooth should not be filled till the mouth is in as healthy a condition as possible. If the gums are simply soft, as we often find in very young persons, without any manifestation of serious disease, they should be restored to a healthy condition before filling. When the gums are soft and flabby the mucous follicles are greatly enlarged, and a much larger amount of their viscid secretion is poured out, and

it hangs round and between the teeth. It is often, if not always, acid, and may act on the teeth chemically. Small particles of finely comminuted food become entangled in it and are held about the teeth, when fermentation is set up and some acid is produced that may act on tooth structure. Therefore, the gums should be put in general good condition before the important and delicate operation of filling is performed. Sometimes there is an amount of calculi on the necks of the teeth sufficient to produce the general condition referred to; even worse, a discharge of pus or ichor, or both, about the necks of the teeth, this ichor having in it some chemical quality that breaks down tooth structure. Of course, such condition should be relieved before the operation of filling is attempted.—DR. W. H. MORGAN in *Dental Headlight*.

FILLING PULPLESS TEMPORARY TEETH.—The patient a seven year old girl, rather weak and anemic, one superior cuspid tooth was pulpless, in the other the pulp was badly exposed. After treating them and thinking it over, I tried this experiment: I extracted the dead pulp, as I would that of any permanent tooth, taking the greatest care to keep the fluids of the mouth from gaining access to the canal. I washed out the canal with a weak solution—one part in one thousand—of mercury bichloride, dried it thoroughly, then washed it out with absolute alcohol, and immediately closed up the open end of the pulp-chamber with a little gutta-percha, warmed and touched with resin and ether to make it stick. I then filled the cavity with gutta-percha. Now if I have been sufficiently careful in my work so that all germs have been excluded, especially those likely to induce putrefactive conditions, I see no reason why that tooth should not remain in a comparatively healthy condition and free from inflammatory conditions for some time to come.

The tooth that had the exposed pulp I treated in much the same way, and used the same antiseptics. The pulp was so badly exposed that it seemed almost folly to attempt to do anything with it; but I could only fail. The result is that neither of those teeth have troubled the child from that day to this. Since then I have followed that line of treatment in two other cases, and apparently with success.—DR. G. S. ALLAN, *Odont. So.*

CLAMPS.—Rubber-clamps are among the most valuable instruments that a dentist uses; at the same time they are among the

most dangerous. Any one who has used them for a long series of years has had cases where decay came as the result of the injury inflicted on the enamel by the hard and sharp edges of the steel jaws of the clamp. I have seen many such results in delicate teeth, and have sought for some means to overcome this. In my own practice I employ clamps with adjustable jaws of soft metal or other substances like hard rubber and celluloid. These jaws are easily replaced if injured, and enamel would require to be very soft, indeed, to receive injury from such clamps. I have never seen a case that showed subsequent decay from the use of my clamps. I describe them here in order to prevent, if possible, some unscrupulous person from patenting the invention, which consists briefly in making clamps with removable and adjustable jaws; said jaws, instead of being made as at present of hard steel, are constructed of tin, rubber, celluloid, or other suitable material; the object being to provide jaws too soft to injure the enamel of the tooth. These little removable jaws can be molded in quantity, and are therefore cheap, and at the same time they are readily bent to fit any special form of the tooth to which they are to be applied; this is a strong point in their favor. Besides this advantage they require but a few clamps to fit a whole set of teeth, for the jaws being removable suitable ones can be selected from a great number and simply placed in the clamps for use.—W. H. ROLLINS in *Int. Jour.*

TO REMOVE BROKEN DRILLS FROM NERVE CANALS.—DR. TRUMAN exhibited a device he had recently used to remove a broken instrument from the pulp canal. The instrument in question, a nerve-dill of the Gates-Glidden pattern, had twisted off, deep down the pulp canal of a superior lateral incisor. He had, in the effort to remove it, enlarged the canal around it, and loosened it so that it could be readily moved from side to side, but he was not, with any instrument at hand, able to seize it for removal. Taking a piece of fine brass wire, such as is used to keep open the needle of a hypodermic syringe, he formed upon one end a spiral of a few turns by winding it upon an instrument about the same size as the broken one and securing the other end to any small tool with gum shellac. This spiral he placed over the broken instrument in the pulp canal, pushing it well down with a broach. Upon gently withdrawing it, the coils of the spiral tightened upon the broken instrument, holding it sufficiently firm to effect its

removal. As suggested that, in cases where the broken portion was more firmly impacted, it might be best to place within the spiral, before placing it over the broken instrument in the root, a minute portion of zinc phosphate cement,—not, sufficient, however, to permit the cement to come in contact with the walls of the canal; and after placing it in position allow it to harden before withdrawing it. He said that the difficulty in removing a broken instrument from the pulp canal is usually due, not so much to the firmness with which it is held, as to the difficulty of getting any instrument to take hold of it; especially is this the case with a pulp canal reamer whose cutting portion is larger than the shaft.—*Cosmos report Penn. Asso.*

Books and Pamphlets.

INSOMNIA AND OTHER DISORDERS OF SLEEP. By HENRY M. LYMAN, A.M., M.D., Prof. of Physiology and of Diseases of the Nervous System in Rush Medical College, etc. pp. 239. Cloth, price \$1.50. Chicago: W. T. Keener, Publisher.

Those who are troubled with these disorders will find much that is interesting and instructive in this book, and from one of high standing in the profession. Chapter I treats of the Nature and Cause of Sleep. II, Insomnia, or Wakefulness. III, Remedies for Insomnia. IV, Treatment of Insomnia in Particular Diseases. V, Dreams. VI, Somnambulism. VII, Artificial Somnambulism or Hypnotism. Each subject is treated in a thorough, careful and concise manner and in such language as to make the book specially interesting; the author has evidently brought to bear upon the subject, extended research, and close observation. No library is complete without a work of this kind and this is the best treatise we have found on the subject.

ALDEN'S MANIFOLD CYCLOPEDIA.—Volume XI. carries this work from Debt to Dominie. The 640 pages are packed with information of just the kind which the vast majority of reading people desire to obtain. Like its predecessors it is truly *manifold* in its character. In a single volume it gives an unabridged dictionary, and a cyclopedia of information which is ample for practical use, is fully reliable, and is brought down to the present year. The form of the book is most convenient; the paper, printing, and binding are all very good. A specimen volume may be ordered and returned if not satisfactory. JOHN B. ALDEN, Publisher, New York.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Societies.

"Wherewith one may edify another."

MEETINGS.

Michigan State Dental Association meets June 4, 1889, at Grand Rapids.

Indiana State Dental Society meets next in Indianapolis on the last Tuesday of June, 1889.

Missouri Dental Association meets annually on July 10th, 1889. Next meeting at Pertel Springs.

American Dental Association meets on the first Tuesday of August, 1889, at Saratoga.

Ohio State Dental Society meets annually. Next meeting at Cleveland, last Tuesday of October, 1889.

INDIANA STATE DENTAL ASSOCIATION.

THE thirty-first annual meeting will be held in Indianapolis on Tuesday, June 25, 1889, and continue four days.

R. W. VAN VALZAH, *Secretary*,
Terre Haute, Ind.

MEETING OF THE MICHIGAN STATE BOARD OF EXAMINERS IN DENTISTRY.

THE next meeting of the Board will be held in the city of Grand Rapids, commencing on Tuesday, the fourth day of June, 1889.

All parties not now registered, who desire to become legal practitioners of dentistry in this State, should present themselves before the Board at that time.

All graduates of reputable dental colleges of this country, will be entitled to registration by exhibiting their diplomas to the Board, and depositing with its Secretary the required affidavit, and 25 cents registration fee.

All others will be required to pass a satisfactory examination before the Board.

Each party examined will be required to insert one or more gold fillings in the presence of the Board, and should come prepared with instruments and gold, and provided with a patient. The merits of any gold or other metal plate, made by an applicant for examination, and exhibited by him before the Board, will be properly placed to his credit on the final decision.

G. E. CORBIN, *Secretary*.

CHICAGO DENTAL SOCIETY.

At the annual meeting of the Chicago Dental Society held on Tuesday evening, April 2, 1889, the following named persons were elected officers for the ensuing year; P. J. Kester, President; D. M. Cattell, First Vice-President; W. J. Martin, Second Vice-President; A. E. Baldwin, Secretary; Louis Ottofy, Corresponding Secretary; E. D. Swain, Treasurer; A. W. Harlan, Librarian; Members of the Executive Committee, J. Austin Dunn, Board of Censors; F. H. Gardiner, C. F. Hart and L. L. Davis, Delegates to the International Dental Congress at Paris, France, September 1 to 8, 1889, were appointed as follows: A. W. Harlan (Secretary), J. N. Crouse, T. W. Brophy, J. A. Swasey, P. J. Kester, W. W. Allport, A. E. Baldwin, Louis Ottofy, L. L. Davis, J. W. Wassall and W. B. Ames.

A report from Dr. Crouse showed the Dental Protective Association of the United States to be flourishing and dentists throughout the United States are requested to become members of the association.

LOUIS OTTOFY, *Corresponding Secretary*.

NEW DENTAL LAW.

THE last Colorado Legislature enacted a law regulating the practice of Dentistry, and giving the Governor the power to appoint a State Board of Dental Examiners. This law requires any one who may desire to continue the practice of dentistry in Colorado to appear in person before the said examining board at

such time and place as the board may designate. The first meeting of the Colorado State Board of Dental Examiners will be held in Denver, Colorado, on Monday, June 24, 1889, at 10 o'clock, at the St. James hotel.

The law requires all persons appearing before said board for examination as to their ability to practice dentistry in Colorado, to pay a fee of ten dollars. No extra charge will be made for the certificate which the board will issue to those found qualified. Applicants will be examined in writing or orally as they may prefer.

The right of each state to regulate the practice of professions was legally settled last January by the Supreme Court of the United States in the case of Dr. Frank M. Dent, of West Virginia. In this case Dr. Dent refused to comply with the law and the courts of Virginia decided against him. He then appealed the case to the Supreme Court of the United States and the Supreme Court also decided against him. The Supreme Court, in deciding the case, said :

"The right to continue the practice of professions is often of great value, and cannot be arbitrarily taken away, but there is no arbitrary deprivation of such rights where its exercise is not permitted because of failure to comply with conditions imposed by the state for the protection of society. The power of the state to provide for the general welfare of its people authorizes the state to prescribe all such regulations as may be necessary to secure the people against the consequences of ignorance and incapacity."

The Colorado Examining Board will ask such questions in Anatomy, Physiology, Histology, Materia Medica, Therapeutics, Chemistry, Operative and Mechanical Dentistry as any practical dentist should be able to answer. It is the desire of the board to have the assistance of the entire profession in Colorado in elevating the standard of dentistry in this State. For further information address

J. M. PORTER, *Secretary State Board of Dental Examiners,*

Room 7, Barth Block, Denver, Colorado.

DENVER, COLORADO, May 3, 1889.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

DENTAL ELECTRICITY.*

BY DR. F. S. WHITSLAR, YOUNGSTOWN, O.

ELECTRICITY in its application to dentistry is by our ignorance of its origin and action, as well as by lack of experience, limited. Yet the many new phenomena that are constantly being developed make it a fascinating field for study.

Dental Electricity, the subject assigned me for a paper, while it has no reference to the application of electricity mechanically, or therapeutically to dentistry, I ask your indulgence and permission to say a few words concerning its value and use in therapeutics.

Those who were present at our last annual meeting, will remember that we called attention to the anæsthetic effect brought about by combining an electric current with cocaine, that the electric current has the property of causing the forward movement of fluids contained in capillary tubes, called the cataphoric force or effect of the electric current, is a demonstrated fact. It was also discovered that if the electrodes of a battery

* Read before the Northern Ohio Dental Society, at Cleveland, O., May, 1889.

were moistened with a solution of cocaine and brought in contact with the skin, the cocaine is propelled into the cellular tissue, causing the skin to become anæsthetic within a few minutes, so that it may be punctured with needles or cut with knives without causing any sensation of pain. Our suggestion was that it might be applied to obtund sensitive dentine. Our method of application is as follows: After having insulated the tooth or teeth by the application of rubber-dam, place into the cavity of the tooth a pledget of cotton well saturated with a six or eight per cent. alcohol solution of cocaine, then with a properly shaped electrode place the positive electrode onto the cotton, while the negative electrode, with a sponge attachment quite wet, apply to the cheek, if for right superior teeth over the right infraorbital foramen; if for the right inferior teeth over the right mental foramen, using a galvanic battery. You may now turn on the current, that generated by from four to six cells will ordinarily be force sufficient, two or three applications with brief intervals being sufficient. A similar application of chloroform, 12 parts; tinctures, aconite, 12 parts; capsicum, 4 parts; pyrethrum, 2 parts; oil cloves, 2 parts, and camphor, 2 parts, has been made with satisfactory results. In applying the positive pole to the cotton placed in a tooth, electrodes of different forms may be needed; but with a piece of stout brass wire a dentist can soon make a number of such size and shape as may be required. In addition to the obtunding of sensitive dentine, exposed living pulps may be painlessly removed by the foregoing method of applying cocaine.

Electricity may also be used as a sedative. Besides its vitalizing influence, which is of the nature of a restorative rather than a stimulant, it possesses a quality as directly opposed thereto, as the excitant effect of a small dose of opium is opposite to the narcotic effect of a larger one. Faradic currents possessing fineness, evenness and softness, should be employed if sedative effects of electricity are to be attained. We mean by fineness of current, such rapid vibrations of the armature as to be beyond count, and to give when applied the sense of a steady, continuous stream, to give a "steady by jerks" current would be conducive of anything rather than sedation.

Facial neuralgia, which is not always the result of bad teeth, nevertheless we are sometimes called upon to treat; by a wise and judicious use of the electric current speedy relief may be

attained. Treatment consists in the use of a low tension galvanic current from four cells; place the positive pole connected with a small carbon point over the mastoid foramen of the affected side and stroke the face with a large, soft sponge well moistened with salt water, always following the course of the distribution of nerve branches; the reason for thus directing the current is apparent, when we take into consideration the fact, demonstrated by W. T. Hutchinson in 1876, that a descending current of galvanism traversing a nerve trunk will partially empty its arterial vessels of their contents, while an ascending one promptly fills them; there is also a tetanizing effect, and the vessels receiving their innervation from this source contract very strongly. Bartholow in his work on *Materia Medica and Therapeutics*, says, "Nothing is more certain in therapeutics than the relief to *pain* by the galvanization of the affected nerve or nerves." I will not further trespass on your time by speaking in detail of the value of electricity in treating hyperæmic conditions of the peridental membrane and tissues of the oral cavity.

As nearly every educated person remembers distinctly some school experiment or some trial of an electrical machine at a fair, where a shock was received sufficiently severe to rouse the memory into prompt activity. A word of caution in the use of electrotherapeutics and I pass to the subject assigned me.

First, never hurt a patient.

Second, never tire him.

Almost the first question will be now, "Doctor, don't hurt me, will you?"

It will be an exceedingly good plan to test the force of the current about to be used upon the most sensitive spot of one's own person, the tip of the tongue, and if it can be borne there the patient can bear it anywhere.

Now to our subject, Dental Electricity. Is there such a thing as dental electricity? Does it in any way act injuriously upon the structure of the teeth? How may we prevent or so control its action, that its injurious effects may be prevented or reduced, are questions that have engaged the attention of some of the best thinkers and writers in the profession. You would be not a little surprised at the diversity of opinions entertained, which diversity of opinion doubtless is due to the fact that electricity as a science is still in its babyhood. However the careful

attention it is receiving from brilliant minds in America and Europe, will cause the clouds that yet obscure its nature to roll away, and as I believe this hidden force, instead of acting injuriously upon the organs of the oral cavity, will under wise direction become a valuable aid in conserving the comfort and welfare of our patients.

In the investigation of our subject, it will not be necessary to describe in detail the anatomical elements and physical structure of the teeth, but will briefly note some of the predisposing and exciting causes of decay. Preëxisting functional condition; peculiarity of structure and form, which renders it favorable for the development of disease, are predisposing causes; while vitiated secretions of the mouth, saliva and mucus, secretion from the stomach, decomposition of animal and vegetable substances in the mouth, acids taken with food, acids administered as medicines, and last though not least, the acid excreted by micro-organisms, are the exciting causes of caries of the teeth. Furthermore, there are those who maintain that in addition to the foregoing causes of decay, galvanic action as a means of decomposing compounds that are in the mouth, and forming other combinations which act chemically upon the teeth, is, therefore, also an exciting cause. Now while the use of a *galvanoscope* may demonstrate the existence of an electric current in mouths containing teeth filled with a combination of metals, it does not prove that electrolysis of elements present in the mouth is a necessary result. What is electrolysis? It is the chemical dissolution of a substance that is capable of conducting electricity into its component elements, which dissolution is only attained by the use of a high tension current. A high tension or electrolytic current cannot be produced by a single cell, but by a number of cells connected in single pairs throughout. By tension, is meant the power to overcome resistance. A word of explanation: "The force generated in the cup by the chemical action is termed the *electro-motive force*, and it is the difference in potential between the two elements. The power of any combination of cups is the sum of the electro-motive force of each one less the difference caused by resistance in the circuit. The current from a battery has *strength*, *tension*, and *quantity*. The strength is the amount transmitted in the unit of time along a given conductor; tension is the power to overcome resistance; and volume is the net quantity available."

The *circuit* of a galvanic battery consists of the space between the elements in the cup, the conducting element and the wire which unites the poles. The current passing over this circuit has resistance to overcome the persistence opposed by these several parts. Now in the mouth, the conducting element is the saliva, which, according to Berzelius, contains of water, 992.9; ptyalin, 2.9; mucus, 1.4; extract of flesh, with alkaline lactates, 9; chloride of sodium, 1.7, and as water is an indifferent or poor conductor, and the saliva in a normal condition is of a thousand 992.9 water, it follows that the galvanic current has a degree of difficulty in passing through, which resistance causes a loss necessarily of electricity. We wish to note the fact also that electrical phenomena is the *result* and not the cause of chemical action which takes place in the elements; furthermore, that acids collect at the positive poles and alkalis at the negative. Lactic acid, acetic, hydrochloric, oxalic, uric, and others are sometimes found in mouths containing no dissimilar metals, in fact no metals at all, hence their existence in the mouth, and their corroding and dissolving effect is not dependent upon the presence of a galvanic current generated by dissimilar metals.

We said that acids collect at the positive pole. Now in mouths containing amalgam and gold, amalgam would be positive, while gold would be negative, acids would, therefore, collect at the amalgam, and if what is claimed (that its action results in dissolving away the baser metals from the surface, thereby raising it almost to the standard of a negative) be true, it has served a good purpose; first, by increasing the value of the filling, and second, in lowering the potential. But we are told that electrolytic action takes place around the negative (gold), hence such fillings fail. Now while it is perhaps true that living dentine like all living structures and tissues of the human body is a conductor of electricity, it cannot be made use of as an electrode, which of necessity must be positive. Dentine, therefore, not constituting a positive electrode, no current exists between it and the filling, hence the affinity of the tooth structure for acids is not increased by gold fillings.

A word or two about tin and gold fillings and our task will end. Having for nearly thirty years used tin and gold in apposition or combined, and observing with pleasure the satisfactory results obtained, especially in teeth of soft or frail structure, and

noting also the *electro-chemical* union, as well as the hardening of both metals, we regard it as second to gold, only where the tooth structure is thoroughly calcified and dense. In the language of another, "I do not believe it possible that any stroke of electricity produced in the mouth can do the slightest harm to the weakest tooth ever found in the human mouth."

PYORRHEA ALVEOLARIS.*

BY J. R. BELL, D.D.S., CLEVELAND, O.

SCIENTIFIC experiments have often been published describing the accumulation of calcareous deposits about the teeth, giving its analysis, etc., therefore, I will omit such descriptions and devote my time to the common causes and simple treatment of this disease. It may be laid down as a rule that inveterate meat eaters are most subject to diseased gums, and that removing the deposit, cleansing the inflamed pockets with antiseptics, changing the patient's diet from meat to a vegetable, will, in a majority of cases, restore the tissues to a healthy condition. Treatment in every instance must be graduated according to the different stages in which the disease is found. I do not include salivated subjects, or those who are of a scrofulous diathesis, for with these causes the removal of the teeth in chronic conditions seems to be the only alternative. These symptoms as you all know are hard glandular tumors, seen commonly on the neck or under the chin, and a preternaturally secretion of saliva. Where there is a scorbutic tendency, and this is most common, and is characterized by livid spots, varying in size, paleness, langour, depression of spirits, foetid breath, spongy and bleeding gums, teeth slightly loose, we may state to our subject with the utmost assurance that the disease can be checked, teeth tightened, and parts restored to nearly their normal condition. Our first step is to remove the deposit, when an assistant is indispensable, for therein lies the secret of success. As the deposit is detached the assistant should spray the pocket with a tepid solution of bichloride of mercury, 1 grain to 1 pint of water, by so doing all the foreign particles are removed from the bottoms of the diseased pockets, the soft tis-

* Read before the Northern Ohio Dental Society, at Cleveland, O., May, 1880.

sues are thus thoroughly sterilized, relaxing the tissues so that the small sinuses are cleansed of their contents. Following this dry the gum margin with antiseptic cotton pellets and inject fresh peroxide of hydrogen, using it freely to reach every point, then syringe again with the bichloride solution, repeating the process till the effervescing action ceases. If now sure all scales are detached and floated out of their little chambers, the loosened festoons of gum should be pressed against the teeth, when Nature with her granulating process will finish the adhesion of gum and periosteum anew. In the first stages of this disease this treatment will be sufficient except to change the patient's diet from meat to vegetables and fruit, instructing them in the use of the prophylactic brush and the preventive properties in castile soap as a dentifrice. With chronic cases more stringent remedies will be necessary, where teeth are loosened, process absorbed, thick, creamy pus exuding, margins of gums purplish in color, covering a portion of the crowns of the teeth. Less hemorrhage, and much less sensitive with these conditions present. Stimulating remedies are necessary and we have found that nothing answers the requirements of the case as well as chemically pure sulphuric acid. It has a threefold object, 1st, dissolving any undetached scale of tartar; 2nd, removing points of necrosed alveolus; and 3rd, stimulating blood to the depleted tissues and healing them by first intention. A cleansing wash should be used thrice daily after meals following the thorough application of soap. I find bichloride admirable, one grain to a quart of water, never omitting to label the bottle, poison, and explaining its value as a germicide. Lastly, an astringent wash to be used just before retiring.

| | | | | | |
|------------------|---|---|---|---|--------------------|
| Tinct arnica | - | - | - | - | 1 oz. |
| " myrrh | - | - | - | - | $\frac{1}{2}$ oz. |
| Acid carbolic | - | - | - | - | 20 min. |
| Oleum gaultheria | - | - | - | - | $1\frac{1}{2}$ dr. |
| Alcohol | - | - | - | - | $2\frac{1}{2}$ dr. |

By earnestly impressing upon patients the value of this self-treatment, assuring them that hope of saving their teeth lies with themselves, we can accomplish more than can be done otherwise, at the same time gaining their confidence schooling them in a habit which will be of permanent benefit to at least one generation.

THE USE AND ABUSE OF AMALGAM.*

BY J. R. OWENS, D.D.S., CLEVELAND, O.

THERE are contests of ideas, which once being downed, sink into oblivion. Not so with truth. "Though cast to the earth, it will be raised again."

The amalgam question has so impressed me. It has had strong partisans from its introduction to the notice of dentists in this country. The question has often come to me, would the use of amalgam been so harshly received had its introduction come through legitimate practitioners, instead of empirics, as it did? True, since its presentation to dentists it has been grossly abused by incompetent, dishonest, and ignorant men who assume to practice dentistry. These abuses have helped to keep up the hue and cry against amalgam. But a brighter day is dawning. Justice is being meted out to that much abused but useful servant to mankind. The vail of prejudice is being lifted and truth-seekers are beginning to see that the material is not at fault so much as the manipulator. New unprejudiced men are coming to the front, who see that alloys of certain metals, amalgamated with mercury, when properly treated, and skillful hands and good judgment prepare the tooth and insert the amalgam in the cavity, caused by decay, a filling is produced that is only excelled at any time by the best worked gold fillings. In many cases will give better service than skillfully wrought gold fillings. True, if all operators were perfect in stopping decay with gold, and compensation, long operations, weak and delicate patients, and structurally frail teeth had not to be considered, at times, gold would, undoubtedly, be the best material (all around) known to us for stopping decay.

The weakness of tin, is its lack of density, cohesion, and in the case of frail teeth, it requires too much force to condense the foil. The same criticism is true of felt foil. Oxychloride of zinc, while probably the best material known for preserving a cavity from decay, does not stand the wear of mastication. Oxyphosphate of zinc is better in this respect, much better, but is too

* Read before the Northern Ohio Dental Society, at Cleveland, O., May, 1889.

unreliable regarding disintegration. It probably shrinks somewhat in crystallizing and does not preserve the walls of the cavity from decay so completely as oxychloride of zinc. Rapid strides have been made in the quality of these cements, and we may hope for something still better in that direction. Gutta-percha is deficient on masticating surfaces, and more so is Hill's stopping.

How about amalgams? There are a great variety of these alloys. The aim in them all is to get a material in which one metal will expand to an equal extent that another that is used, contracts, thereby getting an alloy which, when amalgamated, will remain the same in volume when crystallized as when it is inserted into the cavity. Another thing to be desired, is such a combination which, when crystallized, it will have sufficient density and cohesive or edge strength; and lastly, such a combination as will resist oxidation as much as possible. It is admitted that to get all of these qualities in one alloy is, so far, a difficult matter. But it has been approximated in several preparations brought to the profession.

What are the merits and demerits of amalgam then? It is a plastic substance which is easily manipulated. It does not require a high grade of skill to use it, and a cavity is quickly stopped at a comparatively small cost of time, labor, and money. The density is entirely sufficient to withstand the wear upon it, and if the filling is polished several days after insertion (as all should be) it is not conspicuous in color. Its defects are, a tendency to oxidation and brittleness. The former makes it objectionable in front teeth,—the same alloy will oxidize more in front teeth than back teeth, because of their greater exposure to the atmosphere when the teeth are not moist with saliva. The brittleness makes defects liable at the margin of the filling by the delicate edges breaking away. To prevent as much as possible this liability care should be taken in preparing the cavity that the marginal angles of the filling be as near right angles as may be.

Let us next consider how an amalgamated alloy should be used in filling a tooth. The decay should be thoroughly excavated of all materials, amalgam will admit of the least slighting in that direction. Do not as a rule make pits for the retention of the filling in the cavity, but grooves, and continue the groove

around the whole margin of the cavity when practicable. Instead of beveling the margin of the cavity, as is best to do in preparing for a gold filling, have the margin as near a right angle as may be that there be no acute angle to the edge of the filling when inserted. Brittleness being one the weaknesses of the material, every possible precaution should be taken to prevent thin edges. Amalgam fillings being liable to displacement before setting, through carelessness of patient, also after setting in mastication if not well secured, care should be taken, as stated above, by making a groove around the whole margin of the cavity. The cavity must be kept perfectly dry while filling it. This is absolutely necessary to secure a filling which will preserve the tooth, unless a copper alloy is used which may be useful in cases where it is impossible to keep the cavity dry long enough to insert the filling. Only then would the writer advise copper alloy, owing to the baseness of the metal and the unsightly oxidation. To insure dryness of the cavity for almost all approximal cavities, the rubber-dam should be used. The capillary action is so strong should the moisture get a foothold in the cavity it will find its way throughout the entire surface of the cavity and thus press the soft mass away from the walls making an imperfect filling. That being the case we cannot afford to take risks, and whenever there is a risk we should be on the safe side. If the cavity is deep the dam should surely be applied. Fill the cavity with as stiff a paste of oxychloride of zinc as you can mix and not have it crumble, inserting it quickly and press to the walls with a pad made of a small pellet of cotton held with a pair of pliers, trimming away the cement that the cavity be deep enough only to expose the grooves made for holding the amalgam.

The alloy should be amalgamated with as little mercury as possible and the surplus removed in the folds of a chamois skin aided with a pair of pincers. This care should be taken to remove the surplus mercury, because, first, the erroneous idea of the evaporation of the mercury from the mass to any great extent. This can be demonstrated by mixing a mass, weighing it accurately, and after it has crystallized, weigh it again, it will be seen that it is about the same weight. Or another proof of the continued presence of the mercury. If after crystallization has taken place you grind up the mass and amalgamate it again, it will be observed that the mass does not harden again, or if it

does, very imperfectly, showing that the meshes between the atoms of the metals are filled with the mercury and will not admit more and retain a solid form. These experiments prove to me conclusively that very little evaporation of the mercury takes place, and to leave a large quantity remaining in the amalgam might become an irritant in the mouth of certain patients, and always the mass of amalgam would not be as dense or as strong. It would shrink from the cavity, and like mercury would have a tendency of trying to take a globular form in the cavity, thereby making an imperfect filling. Never fill the nerve canal with amalgam, and seldom the pulp cavity. A cement is the proper filling for both.

Having removed the surplus mercury, you have rather a hard brittle mass. For cavities on the grinding surface, there will be no difficulty in packing it where it belongs, using considerable force. In cavities on proximal surface there might be difficulty. To obviate that use a matrix and always use it where there is an adjoining tooth whereby you can place a wedge between to hold the matrix. A matrix made from a steel ribbon saw, in my experience, is the best. It being very thin and of uniform thickness, it can be withdrawn from between the teeth without displacing the amalgam. Place it between the teeth and insert an orange wood wedge up close to the margin of the gum to hold the matrix in place. The cavity should be so shaped that the margins in no place when filled, will come in contact with the adjoining teeth. In a large cavity this is an easy matter. In small approximal cavities that condition is made easy by separating the teeth with a wedge or a file as the case suggests. If the file is used care should be taken to polish off the cut surface before filling. Having placed the matrix with the cervical wall firmly fixed against the cavity, fill in the amalgam, taking small pieces, first pressing home with large footed pluggers, then with smaller points see that the filling is carried to every point of the cavity. The mercury should be so thoroughly removed that there will be no surplus come to the surface when it is packed home. By the matrix being free toward the grinding surface, the filling will press it out away from the tooth, which will give room for trimming the filling away from the buccal and labial margins of the cavity and leave a contour plug. In the case of small cavities this contour prevents the margins coming in con-

tact with the adjoining teeth. In the removal of the matrix great care should be taken that the filling be not displaced. To do this, remove the wedge then with a pair of pliers that will grip the matrix firmly, draw either toward the buccal or lingual cavity of the mouth carefully but quickly. The matrix being a thin, flat plate will come with little resistance and leave a polished surface to the filling. To get a smooth surface to the remainder of the filling, wipe over the surface with a pad of punk, but the ligatures about the teeth, carefully remove so as not disturb the filling, and cut the rubber-dam from between the teeth, not trying to draw it between the tooth and filling for fear of displacing the filling. See that the occlusion is correct, and after several days polish off the filling as carefully as you would a gold plug, and you have a good serviceable amalgam filling.

Some of the abuses of amalgam I will enumerate. First, because it is only an amalgam filling not to do one's very best with it. This includes bad mixing of the amalgam, slovenly inserting it, leaving masses of the material at the cervical margin projecting to irritate the soft tissue. Neglecting to polish the filling when it is hard. Such neglect is as bad practice as it would be to leave a gold filling unfinished. But you say it takes time and is a bother to have a patient come back for that trifling matter. Yes, it takes a few minutes of time and is a little inconvenient, but if you are honest in your endeavor to serve, you can afford both.

It is an unpardonable and dangerous abuse to fill root canals with amalgam.

It is generally an abuse to fill front teeth with amalgam. There are extenuating circumstances, however, that would make it allowable. Better an amalgam filling than no filling.

When teeth are strong enough and patient is willing or could be induced to have his teeth filled with gold, it is often an abuse to fill them with amalgam.

While the writer does not pretend to have exhausted the subject, he feels that if the suggestions given are adheared to, amalgam will be made a very useful agent for the preservation of the teeth.

THE BEST METHOD OF OBTAINING A CORRECT IMPRESSION FOR A SET OF ARTIFICIAL DENTURES.*

BY JESSE MEGEE, D.D.S., RUSHVILLE, IND.

I ENTER upon the discussion of the subject of taking impressions, fully aware of the fact that there is no subject connected with dentistry upon which there is a greater diversity of opinion, and each practitioner considers the method with which he is most successful the *best*. At college we were taught that the best material for taking impressions was plaster, nor would they accept any other definition to the question. Now if I were to be asked the question, I should have to say modelling compound, for in my practice and observation I am sure if used properly we can obtain a more correct impression. I am aware that a more correct impression can be had of the soft and spongy parts of the mouth, but is that what we want? We want an impression of the parts as they will be when the plate is inserted and pressed to its place. Now if we take the impression with modelling compound it will press the soft tissues to their place and retain them there while it is hardening if cold water is used immediately. My method is to take as much compound as I think necessary, heat water to almost boiling point, put my compound in it until quite soft, then put it in my cup, heat the surface with dry heat, then dry the mouth as thoroughly as possible with a napkin; place the cup in the mouth, be sure the lips nor cheeks do not interfere, then place the cup well up in place, then I threw cold water (ice-water if I have it) all around the cup with my water syringe until the compound is thoroughly hard, then I am sure I have a true impression. I have had patients come to my office for impressions, and about the first question would be, Doctor do you use plaster for taking impressions? I tell them no, nor no one else would if they knew how to use anything else. I am of the opinion that it would be a benefit to all dentists to use modelling compound, first, because we can get a more correct impression; second, because it would be much more pleasant for the

* Read at the East Indiana Dental Association, May, 1889.

patient as well as ourselves, and many other reasons too numerous to mention. I use it and use it successfully, and so can any of you if you will try. I am sure that our patients will be glad when the time comes that none of us will use plaster. Some of our dentists want to adhere to what they either learned at college or under their preceptor, but I have found it the best plan to progress as dentistry progresses. I do not think all compounds are good. I find Hood & Reynold's No. 2 compound far superior to any I have ever used.

I was requested by the community to write a paper on some subject and felt my inability most emphatically, but have done my best and trust to the leniency of you all for my youth and inexperience.

JUDGMENT AS AN ELEMENT IN DENTAL PRACTICE.*

BY E. C. CHANDLER, D.D.S., STEUBENVILLE, OHIO.

THE *subject* of a paper for an occasion of this kind, ought to be the result of careful and thoughtful selection; but the subject of this paper was suggested by a simple incident; suggested isn't *strong* enough, it *thrust* itself upon my mind with such determined persistency that I was obliged to adopt it.

But, like every subject to which earnest thought is addressed, there is more in it than a casual glance reveals; and as I have climbed up higher, in order to get a better view of the subject, it has spread out into a very broad and comprehensive prospect. Though having no specific bearing on any of the subjects *usually* discussed at such meetings, yet it has such a close and vital relation to *all* of them, that I trust it will not be deemed by you foreign to the spirit and purposes of this meeting. I am not sure that you will be able to trace a close relation between my thoughts and their subject throughout, for I have used it simply as an engine with which to draw out the train of thoughts.

If I were asked to-night what is the most essential element, and what most conducive to success in the practice of dentistry, I should unhesitatingly answer—judgment. And by judgment, as applied to dental practice, I mean that faculty which enables

* Read before the Ohio Valley Dental Society April 1889

us to pursue that course in practice, and to select those means and methods most suitable to our own individual surroundings. But the faculty of judgment is something *more* than a mere intuition. I believe it to be innate to the mind, though it seems to be so wholly lacking in some minds, as to render its existence there doubtful; but if the germ exists, it is capable of infinite development. The highest type comes as the result of experience, observation, thought, and discrimination; and I know of no other profession or calling in life that offers so *broad* a field for the exercise of this faculty, as our own.

For, from the time we enter the office as student, through all the years of the longest professional life, there is not a day in all those busy years that we may not *profitably* consult this oracle of judgment.

It is the friendly guide that meets us at the very threshold of the profession and leads the way to worthy attainment and successful practice.

It receives the patient courteously at the office door, disarms him of unnecessary fear and dread, and is graciously considerate of his comfort throughout every operation. It is gentle and sympathetic with the timid and the sensitive; assumes the aspect of dignity and firmness with the presumptuous; and sits down with *ponderous weight* upon the cheeky and chronic grumbler. It selects the most suitable materials, indicates the best methods, and stands as clinical instructor at every operation. It ignores all prescribed rules and usages, and suggests only those means and methods adapted to individual wants; recognizing the fact that a practice that may be *preëminently* successful in one locality may be a flat failure in another.

The first *important* matter upon which judgment must pass, after the student enters the profession, is in regard to location; for up to this point he has been governed largely by the judgment of another.

But, as judgment is progressive, and as experience is one of the essential elements of mature judgment, it is not strange that fatal errors often occur at this point. It is unfortunate that, at the most critical period of professional life, this faculty is most immature, and unreliable, and that fortuitous circumstances often have more to do with laying the foundation for professional life than judgment has. So it happens, that many a man who might

have made a success of life, under more favorable circumstances, has become mentally dwarfed, and starved, by the very *poverty* of his surroundings. Soil, air, sun and water are not the only requisites to vigorous vegetable growth. The pot-plant has all of these; but in order that it may reach its most perfect development, it must be transferred from its root-bound condition to the open air and native soil, where every root and branch may reach out and appropriate to itself the nourishment that is all about it. The same is true in the domain of thought; and so I assert, that for any man to reach the highest altitude of attainment *possible* to him, he must be able to appropriate to that end a generous measure of time and means. Yea, more, he must have communion and fellowship with kindred minds. He must *give* as well as *receive*. He must establish a commerce for his thoughts.

“Good sense will stagnate. Thoughts shut up want air,
And spoil, like bales, unopened to the sun.
Thoughts, too, delivered, is the more possessed;
Teaching we learn; and giving we retain.
'Tis thoughts exchange, which, like the alternate
Push of waves conflicting, breaks the learned scum,
And defecates the student's standing pool.”

We cannot place too much emphasis on the importance of a proper location; but, failing in that, as immature judgment often does, a change should be made, if made at all, as soon as possible. Because, in the first place, reputation constitutes a large part of a professional man's capital stock, and cannot readily be transferred from one place to another. And in the second place, a man can neither be happy, nor in the highest degree successful, so long as he is dissatisfied with his surroundings. But, domestic ties, social relations, and business interests, often render a change of location inexpedient, if not impossible. What *then* is the wise thing to do? I answer accept the inevitable, and make the most of it.

But I would not have you understand me to believe that we should be content to remain in the position which the mere force of *circumstances* has placed us; that we should extinguish the taper of intelligent thought, quench the zeal with which every ambitious man starts on the journey of life, and burying our talents sink into oblivion! Rather we should be the more active and zealous. The darker our surroundings, the more we need the light of intelligent thought.

But we ought not carry our torch so high that it sheds but a dim, and uncertain light on our own pathway and surroundings; and, as leaders of professional thought, in our own communities, we ought not advance beyond the vision of those whom we expect to follow us. We all deplore the ignorance that so generally prevails respecting our profession; but if we wish to educate the public up to a more intelligent conception of what dentistry *is*, and of what it is *doing* for them to-day, we must adapt the lesson to the *class* we are to teach. I apprehend that the most successful teacher is he, who, recognizing the mental capacity of his scholars, places the lesson just high enough to be fully within reach of their intellectual grasp and comprehension. We have not *all* the inclination, nor the ability if we had, of becoming intellectual and scientific æronauts. We have more practical and pressing duties to perform. The conviction has been steadily growing on me for years, that our dental literature is not broad enough in its application. That is, those who write, fail to appreciate the wants and necessities of a large portion of the profession. There is too much of the theoretical, and not enough of the practical. This, I think, arises from the fact that most contributors to our dental literature live in the large cities; they aspire to such a practice, and position that will attract only the affluent, and the cultured; and as there is no limitation on either line, or fee, they are enabled, not only to do better *work* but to appropriate a large share of their time to study and research. And as thought always seeks a higher plane than that already occupied, so they seek the higher realms of thought and investigation. And, as thought develops, and practice makes perfect, they acquire the habit of easy and fluent expression, and seek the journals as a medium of their thoughts.

On the other hand, the practitioner situated in the towns, and smaller cities, cannot select his patrons for obvious reasons, but must accept all who come to him indiscriminately, and so *his* practice is subject to a thousand modifying circumstances and limitations. He must accept smaller fees, work more hours, and so deny himself those *indispensable* prerequisites to mental progress—thought, research, and experiment.

The cares of practice so engross him, that he has neither the time, opportunity, nor mental activity to pursue such investigation. But it does not necessarily follow that all such men are

failures. Success is not always heralded by the blare of trumpets. It is not even indispensable to a *measure* of success that a man's name should be found on the title page of a book, or in a dental journal; and the fact that a name *is* found there is not an *absolute* sign of greatness. There are men in our profession whose achievements in the practice of dentistry are worthy of emulation, whose names have never appeared in any dental journal, and who are unknown to the profession at large. There are practical operations being performed every day by these same men that would prove instructive, as well as *creditable* clinics before our best dental colleges. I have in mind now, one, who more than sixteen years ago, was setting removable bridges and fixed crowns, which for nicety of adaptation, utility, and artistic execution, I have never since seen surpassed, whose gold plate work I have never seen *equaled*, and whose fillings I have *seldom* seen excelled.

With a breadth, and grasp of intellect, such as few possess, he kept himself abreast of the times, not only in the profession, but on all subjects of general interest. Added to this he possessed a remarkable command of language, and *might* have made a brilliant writer, yet he has never, to *my* knowledge, written a single article. *Why* I am unable to say, but I do know that his talent has not been wasted. He has lifted the professional standard higher, and has made an impress on his own and surrounding communities, that will be felt long after he is gone.

But I would not disparage the honorable position of those who have attained distinction in our profession, whose names are inseparably associated with dental progress, and who have made for us a name, and a place among the learned professions—nay, I am *proud* of them, and *honor* them, but I assert to-night that if we should all aim at the same position they occupy, and should reach it, it would be the most disastrous thing that could befall both the profession and the public. So while I would honor them I would also *exalt* those *earnest, conscientious, hard working men*, who though quietly, have none the less *earnestly*, and *effectively* labored to promote the interests, and uphold the dignity of the profession. The results of their work have been less conspicuous, simply because their practice and surroundings have been essentially different. And this brings me to the thought that has been uppermost in my mind while writing this paper, namely: that different localities demand different methods of practice. No

universal system of practice can be adopted that will be equally adapted to all localities and classes. This is due partly to the diversity of intelligence respecting our profession that obtains in different localities, but more largely to pecuniary restrictions.

Many people who are intelligent on the subject, and desire the best work, cannot afford it. To illustrate: Here is a case where a piece of bridge-work, a crown, or a regulating appliance is plainly indicated; there is no question about what is best to do, but the work is difficult and complicated; it requires time, and a high order of skill, and *these* involve a greater expense than the patient can possibly afford. And in this and like communities there are hundreds of such cases, and the dentist so located must not only decide what is best to do, but that more *difficult* question, what is best to do under the *circumstances*. How can he render the best possible services to his patrons without too great sacrifice to his own interests? These are the questions that he must appeal to judgment every day—to disregard them is inevitable failure.

I think I may reasonably assume that it requires as high an order of judgment to successfully conduct a practice in the smaller, as in the larger cities, where they are exempt from such limitations. Let the most eminent man in the profession locate in such a place, pursue the same course in practice he has been accustomed to, and charge the same fees, and he will have more time for recreation than even the most generous laws of hygiene demand; he could not possibly sustain himself.

It has been said that we ought to render our very best services in every operation regardless of the fee we are to receive. I denounce that as unjust, and unreasonable. From what code of morals comes such teaching? I believe we ought to render *value*, and more, for every dollar we receive, but how far are we to give our time and services, unrequited, to the public? Let us remember there are *others* whose claims upon us supersede those of the public. "Charity begins at home."

Pardon the allusion—I use it simply to point a moral—but witness the spectacle, a few years since, of two leading men and *educators* in our profession, dying in the prime of life, and at the very *zenith* of professional attainment, and leaving their families in destitution! Gentlemen, I confess to you that that *lessened* the respect and admiration with which I had regarded those men.

An ambition for name and fame, though laudable enough, under certain conditions, will not atone for the culpable neglect of the more important, and binding duties we owe to our own.

Yet, we should not sink to the other extreme of supreme selfishness, but choose the "golden mean." And we cannot better do this than by taking a careful and intelligent survey of our surroundings, clasp hands with those about us, and go forward, and upward!

It is not wise to ape those who stand as authorities in our profession, nor to adopt into our own practice every thing we read about in the journals—not even if we believe it to be a good thing in itself. Dental books and journals are very useful helps to every dentist. They are professional granaries—great bins of thoughts and experiences. But they contain mixed grains and a vast amount of chaff.

In order to get *seed-thoughts* we must winnow them through the screen of judgment and then select the seeds with reference to the soil, and the crop we wish to produce. In short, we must have an eye to the eternal fitness of things. Submit all the perplexing questions that arise in our way to an intelligent judgment and let its decisions be final.

THE "ROYAL SUC'." *

BY DR. J. F. SIDDALL, OBERLIN, O.

Royal Suc', O where'd you come from?

Who begat thee, dirty child?

Had'st thou any sire, or was it

Chance that bred thee, bad and wild?

I came up through tribulation,

As the Hebrew children did;

Was a slave in some dark Egypt,

Where like Moses I was hid.

Now I've come to be your servant,

Forty years have brot' me thro';

Many a fight I've had in coming,

But I'm here as good as new.

* Read before the Northern Ohio Dental Society, at Cleveland, O., May, 1889.

Well! thou'rt black, and not good looking,
 Dirty as the very ground;
 Get thee hence, thou vile intruder,
 Never here again be found!

Not so fast, I say, good master,
 Careful how you speak of me;
 I've been fed on quails and manna,
 Ever since I cross't the sea.

You have eaten quails and manna!
 Better tell how you've been curs't;
 Curs't in prose, by note, in rhyming;
 Tell of this, I pray you, first.

Grant you, many would-be prophets,
 First, and last, and always swear,
 Balaam's ass will keep his mouth shut
 When such men begin to tear.

I am *Royal Succedaneum*! *
 Child of bright and sunny France;
 Where they learn to do work quickly,
 Then kick up their heels and dance.

Must I love thee? O thou Royal!
 Royal Mineral Suc' of France!
 If I do may goblins spare me,
 While I go and join the dance.

Must I love thee, O amalgam,
 After all I've said of thee?
 O how often have I spurn'd thee.
 Now to love thee, can it be?

Hard I am, sometimes, to swallow,
 Just a little practice tho';—
 Pin my ears back, grease me softly,
 Hold your nose, and down I go.

Tho' the world has sought to kill me,
 Curs't me, shun'd me when it could;
 Yet at last it's had to own me,
 Fear me, praise me, call me good.

Shun amalgam, some have said it,
 For a thunder mill you might
 Set a-running like distraction,
 All the day and all the night,

* Amalgam was introduced into the United States about the year 1833 by the Crawcour brothers, two Frenchmen. They called it Royal Mineral Succedaneum.

Decomposing your saliva,
 Drying up your extra juice;
 When you make the mouth a battery,
 Sure you are to raise the deuce.

That's the way they used to talk it,
 Talk it thirty years ago;
 Dangerous thing a little learning;
 Did you never find it so?

Now we've found the "bugs" are in us,
 As we never knew before;
 In the mouth! "*There's millions in it!*"
 Only germs and nothing more.

Quick, our thunder mill, where is it?
 Bring us poisonous mercury, too;
 Don't get scared, let be, we'll fix 'em,
 Now I'll tell you what to do.

The *Cosmos*, December, 1887, contains a paper by E. T. Stockwell read before the New York Odontological Society, on The Combination of Metals for Filling Teeth, from which I quote an extract, as follows:—

"There can be no doubt at all that the combination of amalgam and gold, when placed in contact with the teeth and fluids of the mouth, will create an electric current. And I am assured by competent authority that, when a tooth is so filled, the current will flow in the following direction, viz., from the amalgam down through the body of the tooth to the pericementum, from it to the saliva, and from it or through it to the gold. Now, if this is true, there follows a very significant fact, and one that should be particularly noted. The cervical border of a cavity so filled is protected by and enveloped in an electric current, and this current renders a certain defined territory or space about such margins *thoroughly aseptic*. Micro-organisms cannot live in this current, and so such portions of the oral cavity are free from the chemical changes that result from the agency of these organisms."

Crown'd at last, and bles't amalgam,
 Curses now no more for thee;
 Chained lightning in her keeping,
 How she wields it, now you see!

Just as quinine cures malaria,
 And sulphur does the scratches,

Turning every microbe's toes up,
Quicker than it hatches,
As a germicide, quick-silver,
Also might work in tip top,
More than these what need we ask for?
Now I think it time to stop.

DON'T.*

BY JAS. P. THOMPSON, M.D., JOHNSTOWN, PA.

I WILL present for your consideration a few simple prohibitions, and I may say just here, that if you do not regard them, it will be only another case of history repeating itself; for, ever since the creation of the world and all along down the ages, prohibitions, whether of divine or human origin, have failed to prohibit entirely. However, I will say "*don't*" to a few of the many things some of our dental brethren are wont to do and say.

"What shall we do with the sixth year molars?" is a question still asked by members of the profession. One says, "Let them alone." Another equally prominent advises their removal under all circumstances.

Don't take the latter advice. Never extract the sixth year molars without very, very good reasons; and don't forget, too, that those learned men who think they can improve on said old nature are seldom, if ever, safe leaders.

In consequence of early decay, neglect, malformation of the jaw, crowding, or other similar causes, it is often necessary to remove the sixth year molars. But, before applying the forceps, don't, in a single instance, neglect Davy Crockett's judicious advice: "Be sure you're right."

Don't accept the theory that a pulpless tooth is always a dead one. In many cases pulpless teeth have sufficient circulation through the pericementum to make them nearly, if not altogether, as useful as those with living pulps.

Several years ago I refilled for a gentleman the superior central incisors, that he said had been dead for twenty years; and these teeth are as solid and serviceable yet as any of the others in his mouth.

* Read before the Odontological Society of Western Pennsylvania, March, 1889.

Don't take the advice of extremists on the subject of saving or destroying pulps. It is not possible to save every exposed pulp, and it is malpractice to engage in their wholesale destruction. Under favorable circumstances ninety-nine out of every hundred healthy pulps can be saved by careful capping. And on the other hand, almost all, if not every one of those that are not perfectly healthy, will die in spite of the most skillful treatment.

Don't believe, however, that because a pulpless tooth may be useful for many years, it is likely to last as long as its neighbor which has a living pulp.

Don't accept the theory that revivification of the pericemental membrane of an old tooth which has been drying on the shelf for several years, takes place after it has been implanted. Special miracles are not vouchsafed to us in this nineteenth century. A leaden ball may be encysted in the soft tissues, be immovably fixed and carried with comparative comfort for many years; nevertheless there is no vital union between the metal and its living envelope. And, so it is possible that, in favorable subjects, the root of an implanted tooth may be held firmly for a time by a kind of bony ankylosis. The union, however, is mechanical, not vital, and it will, sooner or later, drop out.

Don't take any stock in those experts who say they can drill to the extremity of any root canal and fill it perfectly with gold. Those vaunted operations are among the impossibilities, as every intelligent dentist knows.

Don't believe that immediate root filling is always proper, however much the practice may be commended by enthusiasts. There are many, very many complications which positively forbid its general practice.

Let me say to the few who sit on the upper rounds of dental fame and dangle their feet over the heads of the humble craft below: Don't lay the flattering unction to your souls that you are the only good operators in this country.

And a word now to the unassuming and to those who may, to some extent, lack energy. Don't sit passively at the foot and gaze with superstitious awe at those above you, while you prayerfully wish the gods had made you such scientific prodigies. In this blessed land there is no royal road to greatness in any department of life, and you should ever bear in mind that those who excel are always the hardest workers. Don't wait for some-

thing to turn up that will give you prominence, but go to work with a determination to shape circumstances to suit you. But remember that the important factor to success is untiring industry. If you will read, think, experiment, investigate, be thorough, patient and pains-taking in the minor details of all your operations, and finish every one as carefully as though it were for exhibition before a board of censors, my word for it you will not be always at the foot of the ladder.

Don't work yourselves to death and then enter the senseless plea that you could not afford the time for necessary recreation. It may be true that moments are golden, but it does not follow that they should all be used in money getting. Dental practitioners who do not practice regular common-sense hygiene and get away from the confinement, the cares and the labors of their profession will sooner or later be physical wrecks.

Don't touch alcoholic beverages.

Don't use tobacco. Not one reasonable excuse can be presented in its favor, while scores of valid objections to its use are readily given.

Crazes are contagious, and dentists sometimes fall in with new-fangled, and perhaps unwarrantable practice without thoughtful examination. But, while it is not wise to jump at conclusions, we should avoid the other extreme. Don't condemn or pass by any new thing without an investigation; for assuredly, science will yet bring to our aid in dental practice other means which will rival in convenience and usefulness the dam, the engine, the electric motor and mallet, and the hundreds of other helps which are now so common.

Don't believe that every man who has authority to write D.D.S. after his name is a competent practitioner of dentistry. I am acquainted with some of those fellows who publish to the world that they are graduates of one of the oldest dental colleges in America, and so on and so on; and I know, too, that they disgrace the profession by their quackery and malpractice as much as the general run of itinerant tooth-pullers who have never so much as seen a college. A graduate of this, one of the "oldest colleges in America," boasted to me that he had prepared and filled twenty-five cavities with amalgam in three hours, and that he did this, too, without the aid of a dental engine!

Don't believe that the college professors who graduate such

incompetents are innocent parties to this unblushing fraud upon the public.

When you hear a dentist boast that he has filled a marvelous number of cavities with gold in a few hours, don't take it for granted that his great feat, if truthful, was the result of superior manipulative dexterity. The fillings you may be sure were pitched in, so to speak, as a muscular farmer would fork a load of hay into a mow; and it is equally certain that the bugs will crawl in around the fillings with about the same ease that the long-tailed rodents go into, around, and under the hay-pile.

A colored barber who trimmed my hair once—only once, remember—jerked me about so rudely that I thought his manipulations more suitable for the grooming of a horse than for that of a tonsorial artist.

Don't seize your patient's head with such a heavy hand as the barber did mine, and violently pull it about as though he were a horse. A gentle touch and considerate manner will go a great way toward calming the nervous and fearful, and gaining for you their confidence and respect.

Don't keep an insurance office. I am acquainted with a dentist—a graduate—who warrants his fillings for five years. Of course he will have plenty of unprofitable practice during these years if he does not repudiate his promises.

Don't fail to collect your bills promptly. The more time you give the more unwilling many persons are to pay at all. Then there are so-called ladies and gentlemen who will most positively deny the justness of an old claim.

Correspondence.

"I charge you that this epistle be read."

QUERIES—ANSWERED.

To Dr. Haskell's questions in the June number as to my method of removing bridge-work for repair, I reply—

All dental operations are subject to accident; I have had three cases to repair in the three years I have been making porcelain bridges. The first was the first bridge I made, it consisted

of ten teeth, was attached to the roots of the superior left cuspid, right central, and twelfth year molar, these roots being very strong, and the pins large and long. The twelfth year molar was dead, but in a perfectly healthy condition. About three weeks after the case was inserted, the gentleman received a blow in the mouth from a horse which knocked him down. The four incisors were broken by the blow, but the gentleman assured me his own teeth could not have withstood the shock, as he had his left lateral and central broken by a falling tree which he was sure did not strike with greater force than the horse. The bar was not disturbed neither was there any soreness of the roots. I removed the filling from around the bar in the molar, and with a diamond pointed drill cut into the distal surface of the cuspid until I had cut off the pin where it entered the root, treating the central in the same way; the task of removing the pins from the roots was not so great as it might seem. I ground the porcelain off the bar, soldered four teeth in the space, baked the teeth and soldered two new pins in places of those I cut off, inserted the piece, and to date it has given perfect satisfaction.

In the second case a lady broke the point of a lateral in a piece of four superior incisors attached to the cuspids by the bars extending into the roots through approximal cavities. It is not a difficult operation to remove a case of this kind; drill out the gold, and with a fine bur and suitable excavators cut away the cement. I ground off the lateral, soldered a new one to its place, baked and restored it to the mouth. These cases had no gold to protect them.

The third case was the same as the one described, the central being broken. I made this case over as I was sure I could improve upon it. I believe the liability to accident is reduced to a minimum where the work of protecting the cutting edges and masticating surfaces is thorough. The piece could not be baked after the gold is once on without grinding it away. I have not had a case of this kind break. We do not make them for that purpose, but if a patient of mine should be so unfortunate and sought out Dr. Haskell to help them out of their trouble, he would, I am sure, find some good way of doing it.

EVERETT M. COOK.

CONTINUOUS-GUM AND RUBBER COMBINATION.

BY W. H. MILLER, CANTON, O.

WITH due personal and professional respect for Dr. Haskell, I insist that the claims made for the combination of continuous-gum and rubber (as described in my article in the Dec. '88, number of the JOURNAL), are fully maintained, notwithstanding the Doctor's criticisms on the *obsolete* and *unsuccessful* methods and attempts to accomplish the same results in the past.

Thus far it has proven a success with me, have had none of the bad results that have followed the making and using of the methods the Doctor criticises, it is because I am able to avoid those difficulties that I consider my method valuable.

In the Doctor's January article he gives a "Bit of History," shows that OTHER COMBINATIONS have failed, and concludes that this is the "same old thing." In the reply in the April number I answered all the objections he raised to the *new combination*, and suggested a further use by combining it with a gold plate instead of using a platina plate. In the May number of the JOURNAL he tells what he has done in combination work on *abandoned methods*, and the extent of his experience in continuous-gum on platina plates; neither of which do I deny, nor do I quite see what that has to do with the success of the new combination. He does not understand what I mean by being "preferable in color." I mean that as a matter of color, gold is to be preferred to platina, along with the advantages of thinness and ability to retain the "fit" of the plate, which is liable to be lost in fusing body and enamel on a platina plate. While I am ready to admit his skill and success in fusing on platina plates, I want to say that I have not yet seen platina plates "fit" just the same after the fusing as they did before, have had plates baked by "experts," assuming that the difference in "fit" was in consequence of a want of skill on my part, but the result was not an improvement either in fusing or "fit." In the light of my experience, I can readily understand why continuous-gum on full platina plate is so rarely made, if for no other reason than the change in "fit." Were my experience in the use of the new

combination of continuous-gum on rubber plates, so far as regards "fit" on a par with that of platina plates, I should regard it as a failure and abandon it, but the results in this particular has been the same as with the ordinary rubber plate. The combination with gold has given *better results* than with a platina plate.

The Doctor says that to attach a block of eight teeth with rubber to a gold plate is a "mongrel concern which is neither fish, flesh nor fowl." That is, he condemns a plate that has the advantages of continuous-gum as to appearance, the thinness and cleanliness of a gold plate. The ease of repair of a rubber plate, as a "mongrel concern." Well, I do not!

The combination of continuous-gum on a gold plate was not urged as a cheap plate, but as a better plate than continuous-gum on platina.

In his reference to what I said about its success in my practice, he reminds me that "One swallow does not make a summer." True; nor does one unfavorable criticism effectually condemn a new worthy device.

The great point urged for this work is that it combines what there is of the artistic in continuous-gum, with the cheapness and adaptability of a rubber plate.

Another point was that it could be combined with metal plates, giving advantages that cannot be had by any other method.

The Doctor does not dispute or deny that the new combination has these advantages. He does say that it is the "same old thing." The patent office says it is not the same old thing. If it were they would not have granted a patent for the new method. He says it cannot be repaired. The reply is, that in case the enamel should be broken, REMOVE THE BLOCK, repair and vulcanize to place. Should a tooth be broken, a plain tooth can be fitted to the place and vulcanized to plate, the same as one would do with plain teeth on an ordinary rubber plate.

EDITOR JOURNAL:—Doctor James Leslie of this city has been traveling extensively abroad for the past eight months. Doctor C. M. Wright and myself recently received a lengthy letter from him dated Edinburgh, Scotland. I make a few brief extracts, believing they will interest the many personal friends of Dr. Leslie, who are readers of the JOURNAL.

"The first thought of my heart is to express and sympathize with you as perhaps no other two men can, my deep sorrow when I heard of the sudden death of our dear mutual friend, Dr. Keely. I knew him before either of you. It is now just fifty years ago when we first knew one another, and during all that time we were friends rejoicing with one another and helping one another in every way we could. His life was a noble, generous and unselfish one; and the profession has lost one of its most illustrious members, and his friends one whose like he may never see again in all that sweet and manifold variety so rarely seen. He has gone to his rest, but a loving memory will be with us for him as long as we live.

"While in Berlin I made the acquaintance of Prof. Miller. Learning of my interest in dental education, he invited me to his College. He has 170 students. They were in confined quarters. Chairs and patients plenty, and I have no doubt under his guidance German dentists of ability will soon be numerous in that country. He showed me some specimens of tusks that had been shot into—some diseased—the diagnosis of which was full of interest.

"Leaving London we came to Edinburgh, my native town, which is the most picturesque and beautiful city in the world. Here I renewed my acquaintance with Dr. H. Bowman Macleod, having first seen him at Old Point and Washington. They have a fine dental school here of which he is the Dean. Recently, in the occasion of opening up their new college rooms, the dentists held a meeting and in the evening a banquet was given, Dr. Macleod kindly invited me as his guest. It was a swell and intellectual affair and very social. The most distinguished men of Edinburgh, in medicine and surgery, were present. Dentists stand high here with the medical faculties. The toasts, songs, and speeches, were exceedingly good."

Dr. Leslie expects to return to Cincinnati by the first of October.

Yours Truly,

CINCINNATI, June 1, 1889.

H. A. SMITH.

IMPLANTATION DATA DESIRED.

In order to obtain and place on record a consensus of professional experience and judgment in regard to *Dental Implantation*,

it is desired that dentists in this and foreign countries will kindly transmit to the Chairman of Section VI of the American Dental Association facts called for under the following inquiries :

1. Date of each operation, sex, age, temperament and physical condition of the patient.

2. Description of the implanted tooth, date of its extraction, condition of the peridental membrane, preparation of the root by trimming or shortening, filling material used in the root canal.

3. Antiseptics used in preserving the tooth for implantation and during the operation, also the antiseptic washes prescribed after the operation.

4. Instruments employed in the preparation of the artificial socket and the method of sterilizing same.

5. Appliance used for retaining in place the implanted tooth and the length of time employed.

6. Subsequent history of each case to date of report or up to the time when last seen or heard from.

7. In cases which have failed specify minutely the causes of failure together with an exact description of the appearance of the implanted tooth after extraction.

8. Total number of teeth implanted, number deemed successful and the number known to have failed.

It is earnestly requested that facts of the kind above indicated shall be sent before the first of July next to DR. H. A. SMITH, 128 Garfield Place, Cincinnati, O.

Editor's Specials.

"Write the Vision and make it plain."

GIVE WELL DEFINED THOUGHTS.

THE March number, p. 99, of the *Items of Interest*, gives a short, and rather practical article on "Sensitive Teeth." As it is brief we quote it entire.

"Much has been said in regard to 'Sensitive Dentine' and how to remedy it. I claim that the whole trouble is contained in one small word—cold. Persons perfectly free of it feel but a trifle of inconvenience in the preparation of cavities. Children only ten years of age will often not admit that 'it hurts.'

But when persons have a cold settled in their teeth, the whole tooth substance is inflamed and *exceedingly* sensitive, particularly the *defective* bone; and patients will tell us that the nerve is exposed, when, in fact, the decay is slight. To touch them in this state gives them excruciating pain. I send such patients home to wait till their cold has subsided. Then no 'ob-tunders' will be necessary."

Such is the article by a friend, no matter whom. The "expectant" method suggested is good unless the delay is dangerous. But what does our friend mean by the "one small word—*cold*?" Certainly something else than simply a reduction of temperature.

Forty years ago we had a friend, a graduate of a popular university, who began the study of medicine, but soon abandoned it in disgust, because he could not find out what it meant by "a bad cold." It is doubtful if he could get a satisfactory definition even now.

Our friend in this instance tells us that "when persons have a cold settled in their teeth, the whole tooth substance is inflamed and *exceedingly* sensitive. Now if the whole tooth substance were inflamed from causes other than *cold*, would there not be a condition as "*exceedingly* sensitive"? Or must we infer that this condition can be caused only by "a cold settled in the teeth"?

And if true, as we believe, that this sensitiveness is often caused by inflammation of the dentine, would it not be more definite to advise waiting till inflammation has subsided? And is it not possible that the dentine may be morbidly sensitive without actually reaching the state known as inflammation? Might it not be induced from congestion, determination of blood, or even irritation? And if this inflammation of dentine is caused only by "cold" may it not be that the result continues even after the cold has subsided?

The term cold is convenient. If you have filled a tooth with the pulp nearly exposed, and you meet the patient with a swollen face a few days later, you can tell her she has taken cold, that she should not have exposed herself. Certainly the term is convenient, but hardly as definite as is desirable.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

JUST SO.—Let the masses be taught to recognize conservative dentistry and charlatanism will die out and the operative surgeon will never complain of lack of work.—DR. J. C. OLIVER.

BEFORE SETTING CROWNS wipe the gums around the root with a solution of perchloride of iron which will prevent weeping, and the most important part of the cement will be protected until crystallized.—DR. L. E. CUSTER.

BOUGIES.—DR. AMES says that finely pointed bougies may be passed into fistulæ from the roots of teeth, and that rapid healing will take place from the bottom, much more satisfactorily than when injections of medicines are made. This is a cleanly method, and worth trying.—*Review*.

TO PREVENT CLOSING OF SINUS.—Creolin, 10 drops; water, 50 drops. This will make a milky emulsion, which will stand unchanged for many days. Saturate a pellet or rope of cotton with the above, touch one end of it with iodoform and press into an opening in the gum, or sinus, if you wish to prevent it from contracting or closing.—*Review*.

TO FINISH COPPER AMALGAM FILLINGS.—Owing to the brittle property of copper amalgam nothing can be gained by grinding towards the enamel as you would burnish a malleable filling material. In this case it is better to reverse the motion and grind towards the centre of the filling to avoid chipping the edge. The same precaution is to be observed in the use of chisels and files.—DR. L. E. CUSTER.

MOVING INDIVIDUAL TEETH.—To force out central and lateral incisors, I have found the following methods useful: Around the tooth to be moved, and around the molars as nearly opposite

the direction the incisor is to travel as possible, fit platinum collars. Solder cups upon the collars directly opposite and in line. Make a spring of piano-wire and spring it into the cups soldered upon the collars.

Another method is to make a plate to fit the teeth, thickening it nearly to the cutting edge of the tooth to be moved, and drilling a hole through the thickened part. Directly opposite, at some convenient point on the back part of the plate, drill another hole just deep enough to hold the spring, and put the spring in place. If the hole in the thickened part is drilled in the proper place, the end of the spring will hit the tooth midway between its cutting edge and the margin of the gum. This spring is very effective. The pressure is constant, and it is readily removed for adjustment or for any other purpose.—EUGENE S. TALBOT, M.D., D.D.S., in *Cosmos*.

APPLYING ARSENIC.—My method of applying arsenic in all cavities is simple and safe. I double narrow strips of thin paper; cut out diamond-shaped openings as big as a pin-head; open the paper, and cut into as many small squares as there are holes. I now place the pure arsenious acid, made to the consistency of thick cream—country, not city cream—over the little opening; having another little bit of paper without an opening as a cover, and a pellet of gum sandarac ready. I dry the cavity: apply a mouth-napkin, or the rubber-dam, touch the pulp with carbolic acid, drying afterwards lightly, pick up the paper with the arsenic, apply the opening immediately over the exposure, press the arsenic gently through the opening, put in the paper cover, then insert the gum sandarac. Here is a neat, clean method, which can be used as nicely in approximal as in crown cavities, without danger of messing the margins of the gums. When a cavity extends below the gums, and the latter projects above the edge of the roots, I apply the rubber-dam; or, at least, take extra precautions against moisture, and I am sure that neither moisture gets in nor arsenic gets out.—Ed. *Dom. Dent. Jour.*

TREATMENT OF THE ECZEMA OF DENTITION.—According to M. E. BESNIER, eczema of dentition is a reflex eczema from the face, and at times from the back of the hand and wrist, with tenderness of the gums and salivation. There are three indications in its treatment: (1) to allay the itching of the gums; (2) to con-

trol insomnia; (3) to cure the local condition. To allay the irritation of the gums, he recommends frequent touchings and frictions of the gums with a finger dipped in the following solution:

Hydrochlorate of cocaïne, gr. $\frac{5}{8}$;

Bromide of potassium, gr. viiss;

Distilled water,

Glycerin, of each mcl. M.

To control insomnia, he employs teaspoonful doses in soup, every hour, of the following mixture:

Bromide of sodium, gr. ivss-viiss;

Syrup of orange flowers, f 3 iss.

For the local condition he prescribes the following ointment:

Oxide of zinc, gr. cl;

Vaseline, 3 iv.

In addition, Besnier recommends to cover the affected regions with a mask of linen or muslin coated with gutta-percha. In some affect parts a sheet of mackintosh may be used.—*Gazette Hebdomadaire*.

A GOOD SOLDER ALLOY.—It should be borne in mind that it is a characteristic of many of the metals used to lower the fusing point of a solder without lowering the karat (zinc being a type) to render gold brittle. The process of formulating and compounding an alloy with which to form gold and silver solders, developed what seems to be a fact that pure zinc,—i.e., free from arsenic, antimony, cadmium, etc., will not have this effect.

Take of chemically pure metals:

Silver, - - - one part;

Zinc, - - - two parts;

Copper, - - - three parts.

The copper is melted in a clean borax-lined crucible, the silver added, and then the zinc, in small portions, with constant agitation, stirring with a clay rod. When the denser fumes of the burning zinc pass off pour from a height into water or into an ingot mold. The resulting "solder alloy" may be used in the place of the metals usually employed in connection with gold and silver for gold and silver solders, which will follow and retain the color of the plate used, and be as tough and free from brittleness. The usual plan is to use from four down to two parts of either gold or silver (as gold or silver solder is desired) to one of the

alloy, melting together under borax with agitation, rolling to the desired thickness and marking on one end the karat of the gold used (if gold), and also the proportion of gold as, for instance, $\frac{20}{3}$ —20 karats gold, 3 parts gold.

Solders formed by the use of this alloy are easy-flowing, easily made, and as strong as the plate from which they are made.—DR. DORRANCE.

PRACTICAL POINTS IN THE ADMINISTRATION OF ETHER.—DR. GEORGE F. SHRADY, in *Med. Record*, concludes a paper with the following useful suggestions:—

1. In commencing the administration of ether the gradual method is to be preferred.

2. Its employment allows the lungs to empty themselves of residual air, prevents coughing and struggling, and places the organs in the best possible condition to receive and rapidly utilize the ether vapor.

3. After the stage of primary anæsthesia is reached, the more pure ether vapor the patient breathes the better.

4. The shorter the time of anæsthesia, and the smaller the amount of ether used, the less likely are the unpleasant sequelæ to occur.

5. The more evenly it is administered the less shock to the patient.

6. Anæsthesia should be entrusted to experienced administrators only.

7. Many of the fashionable efforts to resuscitate patients are not only useless but harmful.

8. The minimum amount of force should be employed to restrain the muscular movements of the patient.

9. Mixed narcosis is often advisable for prolonged operations.

10. The utility of the galvanic battery, in threatened death, is yet to be proven.

11. The most trustworthy means of resuscitating desperate cases are artificial respiration, hypodermic stimulation, inhalation of nitrite of amyl, and inversion of the body.

FLANGE PLATE.—Plates constructed with flanges or wing-like projections to extend down beneath the tongue, in the treatment of those troublesome cases, where the absorption has pro-

gressed so far as to obliterate the alveolar ridge to a degree that only a bed of muscles remains for the plate to rest on, or where the attachment of the muscles is so near the top or center of the jaw as to displace and render the plate unsteady in use. And where the sensitiveness of the tissues, or normal condition of the patient is such that heavy plates are not tolerated in the mouth. In those cases, where the form of the jaw that the plate rests on is highest next the cheek, slanting downward and inward toward the tongue, giving the plate a rocking, sliding motion from side to side in use, the flange plate has proved more satisfactory than any other in my experience.

The flange should be joined to the plate a little above the edge, and extend beneath the tongue, as far and as low as the muscles will permit. It may extend entirely around the front, or only on the side, in wing-like shape, as the condition of the muscles will allow.

The plate is a duplicate of a case that has been in use over ten years in the mouth of a nervous patient. She had tried various light and heavy plates in vain, and was not able to use any kind of plate in masticating food until the flange plate was inserted. This plate was used with comfort and proved a success in masticating food.

The tongue and other muscles prevent the plate tipping and sliding, by their action on the flange when in use for the purposes of mastication. The important part of such a plate is the placing of the flange so that it will not irritate the several muscles. It should be as low down as the muscles will allow, but if placed too low the muscles will lift and displace it.—A. M. HOLMES, *Odont. Jour.*

PULP CAPPING.—I stand here an advocate of pulp capping and claim a successful practice in this line. If the gentleman is not able to cap pulps, I am and successfully, and consider the destroying of pulps and filling of roots the last thing to do. I formerly filled roots with gutta-percha and gold, using a little gutta-percha in end of root, which does not prevent me from forcing the gold as far as it will go, the gutta-percha occupying the space which would otherwise be left vacant, unless some plastic was used.

I should cap the pulps of all teeth when the dentine is sensi-

tive: that is when it responds to scraping of excavator and gives off sensation, which I believe to be one of the best tests of a healthy pulp. I should apply carbolic acid freely getting a complete coat of coagulated albumen over the point of exposure, cap with oxychloride of zinc, being very careful to apply the capping in a skillful manner, believing it to be one of the most delicate operations in dentistry, and being sure to have a good solid base for the cap to rest upon, having removed sufficient of the softened portion to make sure that the cap rests solid, and filling over this with whatever material seems best for the permanent filling. As these were my views when I came here, I do not expect to go home and apply arsenic or any other destructive agent to pulps, but shall continue to cap them, having great faith from a long and successful experience in this line of practice.

I do not wish to be understood as claiming that all pulps that are capped remain alive; a certain per cent. of them die, giving no trouble to the patient, but remaining entirely comfortable and the teeth not discoloring; and only by applying an extreme of cold and heat would you know the pulp was not alive.

Another per cent. will give trouble, and the patients come back to you, or to some one else, after capping, and will receive the treatment as laid down in the paper, which I consider sound both as to manner of getting ready and the filling, except perhaps the use of oxychloride instead of gutta-percha; but I think I would as soon risk one as the other.

There is one thing that is lost sight of in deciding between capping or destroying pulps, and that is that quite a per cent. of teeth, even when the roots are filled as well as can be, frequently give trouble.—DR. CROUSE, *Odont. So.*

A SIMPLE METHOD OF MAKING A PIECE OF BRIDGE-WORK.—DR. T. A. LONG says: Prepare the teeth or roots that are intended for your anchorages in the same way as usual; make gold caps or crowns to fit over them. Make the gold crowns either with gold or porcelain cusps. Place the cold caps on the anchorage teeth, and take an impression in plaster or modelling compound. If the gold caps do not come away with the impression, take them out of the mouth and place them in their right position in the impression and cast the model in plaster. When taking the impressions, take two of them; one with the gold caps on the

anchorage teeth, and one without. Make a model from the last named impression for use later on.

Now take a strip of wax about 1-16 of an inch thick and the width of the ridge, or as wide as the case should be when finished, place it on the model reaching from one gold cap to the other. Place on this wax a piece of gold plate sufficiently heavy to give the necessary strength, and long enough to reach from one gold cap to the other, and folded at an angle thus, L, its entire length, curved longitudinally to conform to the bend of the ridge. Place this gold angle bar so that the outer edge of one angle will point toward the labial surface or cheek, and the other edge of the angle toward the top of the piece. Now invert this and solder each end of the gold angle bar to its respective gold crown or cap. This should now be tried in the mouth, and any correction that may be necessary to fit it can be made.

It will be found that the gold angle bar will be raised a slight distance from the ridge. Take the new model and place the skeleton on it, use gum or plain teeth, the same kind as are used for rubber work, wax up the piece same as for a rubber plate, covering up the gold angle bar entirely and allowing the wax model to rest upon the ridge. A slight groove running around near the edge of the piece on the plaster model will leave a corresponding ridge on the finished piece, which will prevent seeds or particles from getting under the plate. If there should be any shrinkage of the gum, the piece can be kept clean underneath, as then access can be had to that part. If no shrinkage takes place, experience has taught us that no bad effects follow placing the piece firmly on the gum.

The advantages of this bridge, are: Great strength, simplicity of construction, freedom from retaining secretions under gold plates or gold backings on teeth, as there are no points to retain saliva. It is not liable to be broken, as the teeth can be heavy and strong, and be supported by the vulcanite. The appearance in the mouth is more natural, as it avoids such a great display of gold.

The above was described to me by Dr. Wm. N. Morrison, of St. Louis, and coming from such an eminent practitioner, I am under the impression that it must be practical.—*Dent. Review.*

A BILL
FOR AN ACT TO REGULATE THE PRACTICE OF DENTISTRY IN
THE STATE OF MINNESOTA.

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. From and after September 1, 1889, it shall be unlawful for any person to practice dentistry in this State, unless he shall first have obtained a certificate of registration thereto, and filed the same or a certified copy thereof with the clerk of the district court of the county of his residence, all as hereinafter provided.

SEC. 2. A board of examiners to consist of five resident practicing dentists is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this Act. The members of the first board under the provisions of this Act shall consist of the members of the present board of dental examiners, existing under chapter 199 of the General Laws of 1885, who shall hold their offices as members of such new board for the term for which they were appointed under said former act, and until their successors are duly appointed. All vacancies in said board shall be filled by appointment by the Governor as hereinafter provided. The term for which members of said board shall be appointed shall be three years, and until their successors shall be duly appointed. It is also hereby provided that no person shall serve to exceed two terms in succession. In case of any vacancy occurring in said board in the term of any member of said board, such vacancy shall be filled for such unexpired term by the Governor from names to be presented to him within two months of the occurrence of such vacancy by the Minnesota State Dental Association in the same manner as hereinafter provided. It shall be the duty of said Minnesota State Dental Association after September 1, 1889, annually prior to August 10th to present to the Governor the names of twice as many practicing dentists resident in this State as there are regular members to be appointed of said board prior to September 1st, in the following year. All appointments by the Governor shall be made within twenty days of the submission of such names to him, and if such names shall not be submitted to him within the allotted time, he shall make his appointments within twenty days from the expiration

of the time allotted for such presentation of names from among the resident practicing dentists. Provided, That nothing in this act shall prevent the appointment of two members of said board from among the resident practicing dentists not members of said Minnesota State Dental Association, if the Governor shall so elect.

SEC. 3. Said board shall choose at its first regular meeting, annually, one of its members president and one secretary thereof, who severally shall have the power during their term of office to administer oaths and take affidavits, certifying thereto under their hand and the seal of the said board. And after September 1, 1889, said board shall meet regularly at least twice in each year, to-wit: On the first Tuesday in April and October, and at such other times as may be deemed necessary by the board. Such meetings shall be held at the medical department of the University of the State of Minnesota. A majority of said board shall at all times constitute a quorum and the proceedings thereof shall at all reasonable times be open to public inspection. And it is furthermore provided, that in the event of any member of said board absenting himself from two of its regular meetings consecutively, the board shall declare a vacancy to exist, which vacancy shall be filled by the means hereinbefore provided.

SEC. 4. It shall be the duty of the first board hereinbefore provided for to meet at the city of Duluth in said State on the second Tuesday in July, 1889, and elect officers, and within ten days thereafter to transfer to a register to be provided by them for that purpose, the name, residence and place of business of each and every person who on the second Wednesday in July, 1889, and pursuant to an act of the legislature of the State of Minnesota, approved March 3, 1885, shall be qualified to practice dentistry in the State of Minnesota, and who shall then be duly registered on the books of the board created by said act of March 3, 1885. No certificates of license to practice dentistry shall be issued after the second Wednesday in July, 1889, under said act of March 3, 1885. It shall be the duty of the said secretary of the first board hereby created to send to each person so registered prior to August 5, 1889, a certificate of his enregistration signed by the president and secretary of such board of examiners.

SEC. 5. Any person or persons who shall desire to begin the practice of dentistry in the State of Minnesota on and after September 1st, 1889, shall file his name, together with an appli-

cation for examination with the Secretary of the State Board of Dental Examiners, and at the time of making such application shall pay to the secretary of said board a fee of ten dollars, and shall present himself at the first regular meeting thereafter of said board to undergo examination before that body. In order to be eligible for such examination such person shall present to said board his diploma from some dental college in good standing, and shall give satisfactory evidence of his rightful possession of the same, provided also that the board may in its discretion admit to examination such other persons as shall give satisfactory evidence of having been engaged in the practice of dentistry ten years prior to the date of passage of this act. Said board shall have the power to determine the good standing of any college or colleges from which such diplomas may have been granted. The examinations shall be elementary and practical in character, but sufficiently thorough to test the fitness of the candidate to practice dentistry. It shall include, written in the English language, questions on the following subjects: Anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, operative and surgical dentistry, mechanical dentistry, and also demonstrations of their skill in operative and mechanical dentistry. All persons successfully passing such examinations shall be registered as licensed dentists in the board register provided for in section 4, and also receive a certificate of such enregistration, said certificate to be signed by the president and secretary of the board. The examination fee shall in no case be refunded.

SEC. 6. Recipients of said certificate of enregistration shall present the same for record to the clerk of the district court of the county in which they reside, and shall pay a fee of fifty cents to said clerk for registration of the same. Said clerk shall record said certificate in a book to be provided by him for that purpose. Any person so licensed removing his residence from one county to another in this State, before engaging in the practice of dentistry in such other county shall obtain from the clerk of the district court of the county in which said certificate of registration is recorded a certified copy of such record or else obtain a new certificate of registration from the board of examiners, and shall, before commencing practice in such county, file the same for record with the clerk of the court of the county to which he

removes, and pay the clerk for recording the same the fee of fifty cents. Any failure, neglect or refusal on the part of any person holding such certificate or copy of record to file the same for record as hereinbefore provided, for six months from the issuance thereof shall forfeit the same. Such board shall be entitled to the fee of one dollar for the re-issue of any certificate, and the clerk of the district court for any county shall be entitled to the fee of one dollar for making and certifying a copy of the record of any such certificate.

SEC. 7. All persons shall be said to be practicing dentistry within the meaning of this act who shall for a fee or salary, or other reward paid either to himself or to another person for operations or parts of operations of any kind treat diseases or lesions of the human teeth or jaws or correct malpositions thereof. But nothing in this act contained shall be taken to apply to acts of bona fide students of dentistry done in the pursuit of clinical advantages under the direct supervision of a preceptor or a licensed dentist in this State, during the period of their enrollment in a dental college and attendance upon a regular uninterrupted course in such college.

SEC. 8. Out of the funds coming into the possession of the board, the members of said board may receive, as compensation, the sum of five dollars for each day actually engaged in the duties of their office, and mileage at three cents per mile for all distance necessarily traveled in going to and coming from meetings of the board. Said expenses shall be paid from the fees and assessments received by the board under the provisions of this act, and no part of the salary or other expenses of the board shall ever be paid out of the State treasury. All monies received in excess of said per diem allowance and mileage as above provided for shall be held by the secretary of said board as special fund for meeting expenses of said board and carrying out the provisions of this act, he giving such bond as the board shall from time to time direct. And said board shall make an annual report of its proceedings to the governor by the 15th of December of each year, which report shall contain an account of all monies received and disbursed by them pursuant to this act.

SEC. 9. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction may be fined not less than twenty dollars nor more

than one hundred dollars, or to be confined not less than one month nor more than three months in the county jail, or both. And all fines thus received shall be paid into the common school fund of the county in which such conviction takes place.

SEC. 10. Any person who shall knowingly or falsely claim or pretend to have or hold a certificate of enregistration, diploma or degree granted by a society or by said board, or who shall falsely and with the intent to deceive the public, claim or pretend to be a graduate from any incorporated dental college, not being such graduate shall be deemed guilty of a misdemeanor, and shall be liable to the penalties provided in section nine of this act.

SEC. 11. Justices of the peace and the respective Municipal courts shall have jurisdiction over violations of this act. It shall be the duty of the respective county attorneys to prosecute all violations of this act.

SEC. 12. Any person who shall be licensed under the provisions of this act, and who shall practice dentistry under a false name with intent to deceive the public, shall be liable to have said license revoked upon twenty days notice of such proposed revocation, and of the time and place of considering such revocation by order of the State Board of Dental Examiners. And any person, who, after revocation of his license shall continue to practice dentistry in the State of Minnesota shall be deemed guilty of a violation of the provisions of this act and shall be subject to the penalties provided therein. Nor shall a certificate to a person under one name by any defense to an action brought against him for practicing without a certificate under another, unless it be shown that such practice under such other name was done without intent to defraud or deceive.

SEC. 13. Every registered dentist shall in each and every year after 1889 pay to said Board of Examiners the sum of one dollar as a license fee for such year. Such payment shall be made prior to May 1 in each and every year, and in case of default in such payment by any person, his certificate may be revoked by the Board of Examiners upon twenty days notice of the time and place considering such revocation. But no license shall be revoked for such non-payment if the person so notified shall pay before or at such consideration his fee and such penalty as may be imposed by said Board, provided that said Board may impose a penalty of five dollars and no more on any one so noti-

fied of a condition of allowing his license to stand. Provided further that said Board of Examiners, may collect such dues by suit.

SEC. 14. The board of examiners created by this act may sue or be sued, and in all actions brought by or against it, it shall be made a party under the name of the Board of Dental Examiners of the State of Minnesota. And no suit shall abate by reason of any change in the membership of said board.

SEC. 15. Chapter 199 of the General Laws of 1885, being an act entitled "An act to insure the better education of the practitioners of dental surgery, and to regulate the practice of dentistry in the State of Minnesota," approved March 3d, 1885, is hereby repealed, such repeal to take effect September 1st, 1889.

SEC. 16. All effects and property whatsoever of the board of dental examiners created by said act of March 3rd, 1885, shall on said first day of September, 1889, be and become the property of the board of examiners created by this act, and said board hereby created is hereby declared to be the legal successor of the board created by said act of March 3rd, 1882.

SEC. 17. This act shall take effect and be in force from and after its passage.

Approved, April 24th, 1889.

Books and Pamphlets.

NERVOUS EXHAUSTION, [Neurasthenia.] Its Hygiene, Causes, Symptoms and Treatment. By GEORGE M. BEARD, A.M., M.D., Formerly Lecturer on Nervous Diseases in the University of the City of New York; Fellow of the New York Academy of Medicine, etc. Second Edition Revised and Enlarged by A. D. ROCKWELL, A.M., M.D., Professor of Electro-Therapeutics in the New York Post Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. In one large octavo vol., nearly 300 pages. Price, \$2.75. Uniform in style with Medical Classics. E. B. Treat, Publisher, 5 Cooper Union, N. Y.

In his preface the author says: "Neurasthenia is now almost a household word, and equally with the term malaria, affords to the profession a convenient refuge when perplexed at the recital of a multitude of symptoms seemingly without logical connection or adequate cause.

In spite of its frequency and importance, although long recognized in a vague way among the people and the profession under such terms as "general debility," "nervous prostration," "nervous debility," "nervous asthenia," "spinal weakness," it is beginning to find recognition in the literature

of nervous diseases. It is the most frequent, most interesting, and most neglected nervous disease of modern times.

Among specialists and general practitioners alike, there has been, on the whole subject, a fearful and wondrous confusion of ideas.

The present work is the result of the experience and study of my entire professional life in the subject to which it relates."

On page 72 we read: "Attacks of tenderness of all the teeth, accompanied by a whitish appearance of the gums, I have noticed in nervous exhaustion. In these attacks, which may result from over-work, or excess, all the teeth may be very tender on pressure, although none of them are decayed." From page 105, "The *rapid* decay of the teeth is one of the symptoms of nervous exhaustion. Although a nervous patient may have an excellent set of teeth, provided they are well taken care of, and properly filled every time a cavity appears, yet early decay in the teeth is to be ranked as one of the results of an impoverished state of the nervous system. That premature decay is a result of civilization is an undeniable fact, and in those whose constitutions are depleted of bone the teeth are rarely good, and they are only kept in fair working order by the great skill of modern dentistry. Dentists are the barometers of civilization; their rise and prosperity is one of the most instructive facts in modern sociology. American dentists are the best in the world because American teeth are the poorest in the world," etc. This is a thorough, comprehensive and certainly a valuable treatise on this very important subject and should be placed in every practitioner's library.

A PRACTICAL TREATISE ON HEADACHE, NEURALGIA, SLEEP AND ITS DERANGEMENTS, AND SPINAL IRRITATION. By J. LEONARD CORNING, M.A., M.D., Consultant in Nervous Diseases to St. Francis Hospital; Fellow of the New York Academy of Medicine; Member of the New York Neurological Society; etc. Author of *A Treatise on Hysteria and Epilepsy*, "Local Anaesthesia," "Brain Exhaustion, with some Preliminary Considerations on Cerebral Dynamics," "Carotid Compression," "Brain, Rest, being a Disquisition on the Curative Properties of Prolonged Sleep," etc., etc. In one large oct. vol., nearly 300 pages. Cloth, price, \$2.75. Uniform in style with Medical Classics. E. B. Treat, Publisher, 5 Cooper Union, New York.

In this volume the author has undertaken the difficult task of explaining the nature and treatment of those pains about the head, which constitute such a fruitful source of misery. Dr. Corning is eminently qualified for the work, and has long been known to the profession as a brilliant and indefatigable laborer in the cause of practical neurology. His contributions to neurotherapeutics are among the most practical and suggestive additions which have been recorded during recent years. To rare powers of perception Dr. Corning unites, in an eminent degree, the faculty of imparting knowledge in an entertaining manner. His style is at once lucid and forcible, not the least of his charms being the power to awaken thought as well as to impart information.

In all matters involving the treatment of pain Dr. Corning is an acknowledged authority, and the precepts which he inculcates are alike worthy of the physiologist and the accomplished physician.

The present treatise on "Headache and Neuralgia" is replete with suggestions and useful matter, and no thoughtful physician can fail to derive both inspiration and practical assistance from its perusal.

KNOWLEDGE AND LANGUAGE.—Volume XII. of Alden's *Manifold Cyclopedia* is now issued. All the strong commendations which have been bestowed upon previous volumes is in equal measure due to this. It is, of course, published in the same handy form and is just as convenient to use as its predecessors. This is no small matter, as all who have had occasion to consult the unwieldy volumes in which cyclopedias usually appear can testify. The editorial work is characterized by the same thoroughness and fidelity as that of the previous issues. The broad field has been carefully gleaned. The results of long continued investigation are presented in an attractive and available form. Open it where you will, the book offers rich treasures of knowledge. 60 cents a volume in cloth or 75 cents in half morocco (sent prepaid by mail). A specimen volume may be ordered and returned if not wanted. John B. Alden, Publisher, New York.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Societies.

"Wherewith one may edify another."

MEETINGS.

Missouri Dental Association meets annually. Next meeting at Pertel Springs, on July 10th, 1889.

American Dental Association meets on the first Tuesday of August, 1889, at Saratoga.

Ohio State Dental Society meets annually. Next meeting at Cleveland, last Tuesday of October, 1889.

MINNESOTA STATE DENTAL ASSOCIATION.

THE sixth annual meeting of the Minnesota State Dental Association will be held in Duluth on July 10th, 11th and 12th. Members of the profession are cordially invited to attend.

L. D. LEONARD,
Chairman Ex. Com.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS

Will convene in regular session at the hotel St. Louis, Duluth, at 9 A. M., July 8, 1889.

H. A. KNIGHT, *Sec'y*,
608 Nicollet Ave., Minneapolis, Minn.

NEW JERSEY STATE DENTAL SOCIETY.

THE nineteenth annual sessions of the New Jersey State Dental Society will be held at the West End Hotel, Asbury Park, commencing Wednesday, July 17, 18 and 19. Prominent dentists from throughout the country will read interesting papers and the clinics will be more than usually instructive. Everything new and useful in operative and mechanical dentistry will be exhibited by the inventors and dental supply houses for whom spaces will be reserved. Low hotel rates will prevail.

CHARLES A. MEEKER, *Sec'y*.

NORTHERN OHIO DENTAL SOCIETY.

THE thirtieth annual meeting held at Cleveland, May 14th, 15th and 16th, was one of the largest attended meetings of recent years. Dentists were present from various portions of the State, and some new names were added to the list of members. Discussions were not as spirited as they might have been yet some very good points were presented, and taken altogether it was a profitable meeting. It is hoped that the executive committee will arrange for more papers and clinics for the next annual meeting, for several more could be used to advantage during a three day's session.

The officers elected for the ensuing year are: President, Dr. John Stephan, Cleveland; Vice-President, Dr. F. S. Whitslar, Youngstown; Rec. Secretary, Dr. F. F. Douds, Canton; Cor. Secretary, Dr. S. B. Dewey, Cleveland; Treasurer, Dr. Charles Buffett, Cleveland.

Next place of meeting is at Canton, on the second Tuesday in May, 1890.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

RESTORING ARTICULATION OF TIPPING MOLARS
WITH GOLD.*

BY DR. J. C. WALTON, HOWELL, MICH.

THAT any one should ask the attention for a moment or two of such a body on such a subject seems presumptuous, yet nowhere in our records as a society, do we find that we have ever given the subject a moment's thought, nor does any literature in my possession mention such an operation, although frequently it is practical and desirable. The object is to bring into occlusion two opposing surfaces of sufficient size to permit your patient in an increased measure to masticate. I say in an increased measure because no repairs by us can promise such perfect results as are accomplished by the proper articulation of perfect teeth. As long as patients continue ignorant or careless of their childrens' dental welfare, as long as first molars continue to decay early, and physicians or dentists unquestioningly extract them, there will be the usual tipping forward of the second molars, thereby destroying that perfect articulation so necessary to perfect mastication.

* Read before the Michigan State Dental Society, June, 1889.

The observing dentist must repeatedly, in his daily practice, be reminded of how acceptable such an operation will be, and why he should continue to pound gold into cavities of teeth so tipped out of position as to be useless, without attempting to better their articulation, is hard to understand. With this operation, as in all contour work, anchorage is of first importance. Without ample anchorage smooth, strong margins and clean surroundings count for nothing.

In most mouths where the first molars have been out long enough for the consequent changed position of the second molars to offer an excuse for this operation you will find cavities already existing. If none offer a welcome anchorage, then with engine, drill, and bur make liberal retaining grooves, commencing in fissures and cutting with a heroic hand. It is better to bring these teeth into service at such a cost than permit them to remain of no use themselves, and in the way of any appliance that might be serviceable. In the preparation of the crown surface use the corundum wheels freely on cusps, or to prevent thin over-lapping edges anywhere. Before beginning the operation notice whether other movements besides tipping have taken place in either upper or lower molars. Aim to have the upper, as a rule, articulate one-quarter or one-third its surface outside the lower to prevent biting the cheek. The articulation of the other teeth must determine whether the articulating surface of the contour is to be a flat surface parallel with the general line of articulation, or an inclined plane. Shape these grinding surfaces so they may be constantly in contact in the act of masticating as the lower jaw moves from side to side. Cut out and fill any depression in a molar that may be in position if necessary to give a good articulation to an opposing contour. Attempt only to secure the mill-stone effect. Do not attempt the restoration of cusps, for although they are ideal, the material we use is faulty, and no amount of good wishes will add to its strength or wearing qualities.

In filling the excavation use any method or style of gold with which you succeed best. My preference is for heavy foil when strength is of importance, folding back and forth ribbons of No. 60 and making most of the contour at least of gold and platinum foil shade two. Anneal carefully, condense thoroughly, finish well.

DISCUSSION.

Discussion opened by DR. DYER. He had built up tipping molars with gold foil but had found it too soft for the purpose; it wore away rapidly. He preferred restoring the articulation with a cap made of gold coin. He expected to exhibit some practical specimens of his work at the clinic in the morning.

DR. J. LATHROP had seen some of Dr. Walton's work and considered it very good having withstood mastication for eight years. At Dr. Walton's request he had taken impressions of some work done by him and had brought the models to the meeting for inspection.

DR. HARROUN thought if gold foil was properly manipulated it could be made hard enough to withstand mastication.

DR. I. DOUGLAS had seen tooth substance worn away faster than the gold filling.

COCAINE ANÆSTHESIA.—WITH A REPORT OF OVER FIFTY CASES.*

BY JOHN L. GISH, M.D., D.D.S., JACKSON, MICH.

I AM prompted to present this article by the many adverse criticisms on cocaine anæsthesia, that have appeared in the medical and dental journals in this country and on the continent. They have portrayed the danger of its use in the most graphic manner and have given to it but a small share of credit that is its due so far as anæsthesia is concerned.

It has not been without profit that our attention has been called to its poisonous effects, and unpleasant symptoms as a result of its administration, but at the same time the danger signal has been hoisted too many times without giving a more rational explanation of its cause.

Cocaine is a drug that is to be used with some degree of *caution*, and to be *administered understandingly*; but this same fact applies to *all* potent drugs found in both the mineral and vegetable worlds. Cocaine in the form of wine of cocoa is recognized and prescribed by the medical world as a most valuable

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nerve tonic, and as an aid to convalescing patients. The ophthalmologist uses cocaine with the most brilliant results, and yet from that specialty you will occasionally see reported a bad case of acute sore eye from the effect of cocaine applications without any other apparent cause. Whereas, if the true cause had been found it would not have been cocaine, as cocaine, but a decomposed solution that had been prepared many hours and perhaps weeks. Now, without going into the history, physiology, and toxicology of the drug I will simply give my experience of its use as administered to meet the wants of the oral and dental surgeon.

Anxious to meet the wants of suffering humanity and alleviate pain in such operations as the oral and dental surgeon is frequently called upon to perform, I hail with much joy the first flattering reports that teemed the journals and welcomed the new drug to a place in my cabinet some four years ago.

If I may be permitted to use the expression, I must say that I was "in the swim." I could see in cocaine a great boon to the afflicted as well as to the dental surgeon. Stimulated by the brilliant results of the ophthalmologist, whose work is upon the delicate structures of the eye, I could see cocaine act upon the more dense structures of the mouth in the same manner. And so the first few cases did happen to be so, and of a natural consequence the problem was solved in my mind. But by and by the first stage of excitement passed away and then I had similar results to my confreres in my part of the country, namely, now and then a good result, but more often a failure in part or whole, with occasional unpleasant symptoms of nausea, vertigo, and general numbness with more or less anxiety.

The good results that I did have were just enough to stimulate me to its farther use, and a more thorough understanding of the nature of the drug, and a more rational explanation of its seemingly bad results. The first series of experiments led me to the conclusion that the unpleasant symptoms were due to an imperfect drug. This opinion I held for some time; until I knew that I was using a good article, which by the way, is even now difficult to obtain inasmuch as it is adulterated with bicarbonate of soda. The unpleasant symptoms would occasionally present themselves even with a known good article. Suggestion after suggestion would come to my mind and remain until its fallacy was proven.

I studied the temperaments of both sexes with the idea that I might so modify the dosage that I could overcome and bring about the desired result; and here I observed with profit that the blond type, speaking in a general way, were the most susceptible to the drug and the more often gave unpleasant symptoms. But yet the end was not complete. Hence with the facts already observed I began to study the *time of administering cocaine relatively to the meal hour* of the patient and found that I had no unpleasant symptoms when the patient came to the office shortly after eating his or her breakfast or dinner, but *did* have occasionally the bad results if they came before their dinner or supper. With this fact before me I was led to observe a little further, namely, as to whether the patient to whom I was about to administer cocaine had or had not stopped on his or her way and imbibed a little something, just to help them up the stairs. From this observation I learned that he who had imbibed had no bad results even though it was just before his meal hour.

With these observations I have decided that in order to have success with cocaine anæsthesia, as desired by the oral and dental surgeon, he must study the temperament of his patient; he must know the quality and strength of his drug; he must consider the hour of administration, and if it is more than an hour after the patient has partaken of food, before using any cocaine the patient should be given from two to four fluid drachms of spiriti vini gallici.

Before giving the mode of administration I will give the rational explanation, as it occurs to me, why we should observe the above precautions in order to have success.

1st. According to clinical teaching we must vary our dosage with the age and temperament of our patient.

2nd. With the purity and potency of our drug do we get the required effect.

3rd. Nausea and vertigo with the feeling of numbness being caused by a peripheral irritation of the pneumogastric nerve when the stomach is not engaged in the process of digestion, then the brandy or any of its substitutes will prevent this irritation, which in turn will relieve our patients of the above unpleasant symptoms. (We must not confound the general signs of fainting with the nausea, vertigo, etc., caused by cocaine, nor must we forget the influence of mind over body.)

MODE OF ADMINISTRATION.—I always use a freshly prepared solution of muriate of cocaine. From a three to a ten per cent. solution, or stronger if the patient requires it. With a little pledget of cotton I bathe the mucous membrane over the parts to be operated on. After an interval of about two minutes I inject, without pain, by means of a very small hypodermic syringe from one to two drops beneath the mucous membrane. After an interval of two or three minutes I inject one or two drops more, down deeper into the tissues. The injecting is repeated two or three times. After a lapse of ten or fifteen minutes, sometimes twenty minutes from the time you used the cocaine with the pledget of cotton the parts will be thoroughly anæsthetized. Of course, the susceptibility of the patient, will govern the time before you can operate.

With these few facts in my possession, I will submit them with a record of over fifty cases, to the scientific men of our profession and await their decision as to whether I have been successful or not.

Record of cases as taken from my book of records under the division of Cocaine Anæsthesia.

Case 1.—Mrs. Q., city. Ulcerated central and lateral incisor roots removed at one sitting without the least bit of pain. Cocaine ten per cent. solution applied locally and hypodermically. Time, twenty minutes. No bad symptoms.

Case 2.—Mrs. R., Buffalo, N. Y. Roots of the left upper wisdom tooth badly ulcerated and very sore; removed by means of the elevator; extracting by aid of the forceps being impossible. Very little pain. Cocaine ten per cent. solution locally and hypodermically applied. Time, twenty-five minutes.

Case 3.—Mr. G. S. B., city. Root of right upper first bicuspid removed by aid of surgical means; very little pain at first but much exhaustion from prolonged operation. Cocaine and ether spray. Time, one hour.

Case 4.—Mr. W. F. McG. Root of supernumary left lower bicuspid removed by surgical means alone; very difficult; no pain to speak of. Cocaine ten per cent. solution locally and hypodermically applied. Time, one hour. No bad symptoms.

Case 5.—Master E. P. Left lower first molar removed without any pain. Cocaine ten per cent. solution locally and hypodermically applied. Time, eighteen minutes.

Case 6.—Master N. W. Removed lower left first molar without pain. Cocaine ten per cent. solution locally and hypodermically applied. Time, twenty minutes.

Case 7.—Mrs. M. A. D. Removed left lower wisdom tooth, badly ulcerated, without pain. Time, fifteen minutes. Cocaine ten per cent. solution locally and hypodermically applied.

Case 8.—Mrs. H. S. Removed four ulcerated roots at one sitting without pain. Cocaine ten per cent. solution locally and hypodermically applied. Time, thirty minutes.

Case 9.—Mrs. D. S. Removed diseased incurable right lower second molar tooth; no pain whatever. Time, twenty minutes. Cocaine ten per cent. solution applied locally and hypodermically; no unpleasant results.

Case 10.—Miss E. B. Removed left lower first molar in an incurable condition; caused by the mercury in a large silver filling. Time, twenty-five minutes. Cocaine ten per cent. solution hypodermically applied; no pain.

Case 11.—Mrs. M. A. B. Removed left lower wisdom tooth badly decayed and ulcerated; no pain whatever. Cocaine ten per cent. solution hypodermically applied. Time, twenty minutes.

Case 12.—Miss E. B. Removed right upper first molar in an incurable condition; caused by the mercury in a large silver filling. Time, twenty minutes. Cocaine hypodermically applied; no pain whatever.

Case 13.—Mrs. B. S. M. Removed right and left lower first molar complicated with cystic tumors. The cyst and tooth of the left side were of a much more grave character than on the right. The diseased conditions were caused by mercurial poisoning from large silver fillings that these teeth contained. Cocaine applied locally and hypodermically; used freely; no bad results and no pain whatever.

Case 14.—Mr. T. J. B. Removed left lower second molar. Incurable. Cocaine hypodermically applied; no pain. Time, twenty minutes.

Case 15.—Mr. F. B. Removed right lower second molar badly ulcerated and painful even to touch of tongue. No pain. Time, twenty minutes. Cocaine locally and hypodermically applied.

Case 16.—Mrs. R. S. S. Removed two roots that were decayed below surface of gum; no pain. Time, thirty minutes. Cocaine locally and hypodermically applied.

Case 17.—Mrs. G. M. Removed one ulcerated root that was decayed far below surface of gum; no pain. Time, twenty minutes. Cocaine applied locally and hypodermically.

Case 18.—Mr. A. W. Removed right upper wisdom tooth badly ulcerated; very sore to the touch; no pain. Time, twenty minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 19.—Master C. W. Removed four premolars at different times. Badly ulcerated and interlocked with the crowns of the permanent teeth below them, making extraction very long, tedious, and difficult; no pain. Time, thirty minutes for each tooth. Cocaine ten per cent. solution applied locally and hypodermically.

Case 20.—Mr. C. H. Removed right lower first molar, ulcerated and crown thoroughly honeycombed with dental caries; no pain. Time, twenty minutes. Cocaine ten per cent. solution locally and hypodermically applied.

Case 21.—Mrs. A. N. H. Removed ulcerated roots of first and second left upper bicuspid; no pain. Time, twenty-five minutes. Cocaine ten per cent. solution hypodermically applied.

Case 22.—Mrs. M. McG. Removed ulcerated root of left lower first bicuspid; root decayed beneath surface of gum; no pain. Time, twenty minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 23.—Miss M. H. Removed anterior root of left upper first premolar, engaged on the crown of the permanent tooth beneath, or rather beside it in this case; no pain. Time, eighteen minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 24.—Miss M. H. Removed right upper first molar, ulcerated; very sore; no pain. Time, twenty minutes. Cocaine ten per cent. solution locally and hypodermically applied.

Case 25.—Mrs. J. M. S. Removed ulcerated roots of upper central incisors, left upper lateral incisor, and right and left upper second molars at one sitting; no pain whatever until the left upper second molar, which was removed last, and then the pain that was felt was very slight. Time, forty-five minutes. Cocaine ten per cent. applied locally and hypodermically.

Case 26.—Miss K. W. Removed badly decayed left upper first bicuspid on account of irregularity; no pain. Time, twenty-

five minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 27.—Mrs. C. K. L. Removed the diseased roots of left lower central and lateral incisor, and roots of right lower first and second bicuspid, and second molar; also a malformed wisdom tooth by surgical means at one sitting; no pain whatever except a very little in the removal of the right lower lateral, caused by commencing the operation before complete anæsthesia. Time, one hour and fifteen minutes.

Case 28.—Miss M. H. Removed left lower first molar badly decayed, for irregularity; no pain. Time, twenty minutes. Cocaine ten per cent. applied locally and hypodermically.

Case 29.—Mr. S. E. Removed right lower first molar badly ulcerated; no pain. Time, twenty minutes. Cocaine ten per cent. solution applied hypodermically.

Case 30.—Mr. D. S. Removed left upper wisdom tooth badly ulcerated; no pain to speak of; parts not completely anæsthetized. Time, twenty minutes. Cocaine applied locally and hypodermically.

Case 31.—Mrs. W. H. McA. Removed ulcerated roots of left upper first and second bicuspid; no pain. Time, twenty-five minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 32.—Mrs. M. G. C. Removed the four lower incisors; roots recrossed and abraded; no pain. Time, twenty-five minutes. Cocaine ten per cent. solution locally and hypodermically applied.

Case 33.—Miss A. DeL. Removed left upper second bicuspid for irregularity; no pain. Time, thirty minutes. Cocaine ten per cent. solution locally and hypodermically applied.

Case 34.—Master C. G. Removed left upper first molar; ulcerated and badly decayed; no pain. Time, twenty minutes. Cocaine locally and hypodermically applied.

Case 35.—Miss H. M. P. Removed right lower first molar; ulcerated; very sore; no pain. Time, twenty minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 36.—Mr. J. E. Removed left lower first molar; ulcerated; very difficult; no pain. Time, twenty-five minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 37.—Mrs. H. W. S. Removed ulcerated roots of left

upper first and second bicuspid; no pain. Time, twenty-five minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 38.—Miss B. T. Removed nine temporary teeth on account of nervous irritation. Three of the above teeth were ulcerating. The teeth were removed in six appointments; no pain except in the removal of one cuspid which was very firmly imbedded and not completely anæsthetized. The average time for each sitting was about twenty minutes. Cocaine ten per cent. solution applied locally and hypodermically except in the case that caused pain; then it was used only locally.

Case 39.—Mr. D. S. Removed left upper first molar; badly ulcerated; no pain. Time, twenty minutes. Cocaine applied locally and hypodermically.

Case 40.—Mr. J. G. Removed right lower wisdom tooth; badly ulcerated; no pain. Time, twenty minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 41.—Mr. E. J. C. Removed right lower wisdom tooth; badly ulcerated; no pain. Time, twenty minutes. Cocaine ten per cent solution applied locally and hypodermically.

Case 42.—Mr. A. B. T. Removed the roots of the right and left upper cuspids, right and left upper laterals, and right and left upper central incisors, and the roots of the left upper first molar at one sitting. The roots all badly diseased and firmly adhered to the surrounding tissues by chronic inflammatory adhesion; no pain. Time, one hour. Cocaine ten per cent. solution applied locally and hypodermically.

Case 43.—On the following day I removed ten roots from the lower jaw of the same patient. The character of the roots the same as those removed on the previous day from the upper maxillary, and the result was the same with the exception of a very little pain when the badly ulcerated roots of the right and left first bicuspid were removed by means of the elevator and chisel.

Case 44.—Mrs. M. G. Removed right lower wisdom tooth; ulcerated and necrosed roots; no pain. Time, twenty minutes. Cocaine applied locally and hypodermically.

Case 45.—Miss L. G. Removed two premolars in the first stages of ulceration, and roots engaged on the crown of the permanent teeth beneath; no pain. Time, thirty minutes. Cocaine ten per cent. solution applied locally and hypodermically.

Case 46.—Miss M. C. Removed right lower first molar; badly ulcerated; very sore and firmly fixed by chronic inflammatory tissue; no pain. Time, thirty minutes. The work was accomplished by means of the elevator and chisel. Cocaine ten per cent. solution locally and hypodermically applied.

Case 47.—Mr. W. Removed right lower first molar; difficult extraction; no pain. Time, twenty-five minutes. Cocaine ten per cent. solution freely used locally and hypodermically.

Case 48.—Mr. S. C., aet. 17. Removed second premolar of right lower jaw. The roots engaging the crown of the permanent teeth beneath it so as to make its removal very difficult; no pain. Time, twenty minutes. Cocaine applied freely locally and hypodermically.

Case 49.—Mr. C. R. K. Removed right upper wisdom tooth; ulcerated; no pain. Time, twenty-five minutes. Cocaine applied locally and hypodermically.

Case 50.—Miss C. C. Removed roots of left lower first molar by means of elevator and chisel. The roots firmly adhered and united to the surrounding tissues by chronic inflammatory adhesions of over a year's standing. There was a constant secreting and discharge of pus from the diseased structures. Time, twenty minutes. Cocaine ten per cent. solution; ten gtt. of which three or four were used locally and the rest injected into the diseased structure. No pain whatever with the exception of a very little upon the removal of the anterior root which was largely exostosed and which caused a spreading of the alveolar process to the adjoining permanent teeth.

The above cases cover a period of several months, but I think that it shows that when the most conservative of us in the art and science of saving the dental organs are called upon to perform such operations as the above, we have at our command an agent by the aid of which we can mitigate pain without danger if properly handled.

DISCUSSION.

DR. J. TAFT opened the discussion, and said that the reports as read by Dr. Gish were very encouraging to the use of the drug. The experiments were more practical and satisfactory, not being performed on the lower animals. Great care ought to be exercised in the use of the drug even when used on the surface

locally. It should be procured from a reliable source, and prepared carefully when wanted for use in solution. Upon inquiring as to the reason for waiting twenty or thirty minutes before operating, Dr. Gish replied that it took that length of time for the cocaine to affect the tissues and that the time depended upon the patient.

DR. HARROUN described a method he had been using, for the removal of the pulp with cocaine. He exposed as much of the pulp as possible, then applied the cocaine crystals, saturated with water, to the exposure. In ten cases there was no pain. He confined his attempts to anterior and bicuspid teeth.

The question was asked, What causes the sickness when cocaine is used in the extraction of teeth?

DR. GISH thought it would be due to the idiosyncrasy of the patient as he had noticed the same sickness when nothing had been used to obtund the pain.

DR. J. TAFT related a case where a man, strong and healthy, had come to him to have a tooth extracted; while he was selecting an instrument the patient became deathly sick. Dr. Taft thought the method adopted by Dr. Harroun for the extirpation of the pulp should do away with the use of arsenious acid, which had been the cause of a great deal of mischief. Dr. Harroun said he did not promise the patient perfect freedom from pain; simply told them it would mitigate it and help them along, and that the operation could often be completed at the same sitting.

DR. TALBOT, of Chicago, was called upon by the chair to take part in the discussion. Dr. Talbot spoke kindly of the reception given him by the Michigan Dental Association nine years ago at the twenty-fifth anniversary of the society. He had not used cocaine very much—did not have a great deal of faith in it. His practice did not permit of his waiting fifteen or twenty minutes for the drug to take effect; so when the patient wished cocaine he applied it, and used the forceps immediately with very good results.

FILLING ROOT CANALS OF HUMAN TEETH.*

BY ISAAC DOUGLAS, ROMEO, MICH.

It is not the purpose of this paper to introduce anything new and untried, nor to discuss at length the various modes and

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materials which have been long in use; but, rather, to detail the method that has given the most satisfactory results in an experience of over 37 years in one place, with ample opportunity to observe the workings of other methods that have been recommended by others and tried from time to time. It is hoped that at least one of the younger members of the profession may thus be spared the tasks of numerous experiments, and that the time thereby saved may be devoted to valuable discovery in new fields.

How shall we get into the root canal with the least injury to the tooth, and the greatest ease to patient and operator? This is a question of no little importance, and of some difficulty to decide. The first step toward becoming expert in filling the roots of teeth, is the careful study of the form of the dental pulp, particularly that part about the neck of the molars. This can best be done by a careful and thorough examination of those teeth that have been consigned to the forceps; not merely one tooth from the various portions of the dental arch, but many teeth from each location posterior to the bicuspid, paying particular attention to the peculiar form and size of the canals well down the roots.

It is a comparatively easy matter to gain access to the root of a bicuspid; bearing in mind that the first upper bicuspid most frequently have two root canals, while the other bicuspid rarely have more than one. This single canal, however, sometimes bifurcates at the neck, being united one-fourth or one-half way down.

It is useless to attempt to fill the roots of any tooth posterior to the cuspids, without having free and direct access to such root canal in a line with its entrance into the root

A drill should never be used to enlarge or alter the form of a root canal. Yet it is occasionally necessary to use a drill to remove a pulp pebble that extends far into the posterior root of a lower molar, or a palatine root of an upper molar, and, possibly, in a bicuspid. But it is rarely advisable to use a drill at all as it leaves the canal in an ill shape for further procedure; the drill is almost sure to leave corners, or at least a roughness, which more or less interferes with the ready introduction of instruments or materials for filling. In the natural state the canals are smooth throughout their entire length. They may be curved or tortuous, but they can so rarely be improved by the use of drills,

that I have destroyed a part of my root canal drills, lest I might be tempted to use them.

To obtain the best entrance to the root canal of the anterior six upper teeth, requires careful consideration. The success of the operation must be secured, yet the strength, durability and beauty of the tooth must not be impaired. Perhaps there is a good filling in each approximate side of an incisor or a bicuspid, and these fillings may extend so far toward the palatine center, that, to drill another opening would too much weaken that side of the tooth. In such a case, that filling should be removed which would give the most desirable entrance to the canal. Other things being equal, in case of a lateral incisor or a cuspid, it is better to enter from the anterior approximate side; because if one of these roots should be curved, which is very liable to be the case, we would thus gain a more direct access to its apex, particularly if the incising end of the crown is intact. The drill should then start at a point about one-thirty-second or one-sixty-fourth of an inch from the outer surface of the tooth near the lingual portion of the cavity; the drill should be held at an angle of twenty or thirty degrees to the root canal, so as to reach it about one-half or one-third the way up the foot. Care must be taken not to leave too much of an angle between the root canal and the one we have just made; also, to avoid letting the drill touch the opposite side and make a depression that will cause annoyance subsequently.

The first tool to introduce into a root canal is a broach, and this should be the best five-sided jeweler's watch broach. By proper annealing, a broach may be made perfectly soft, or spring-tempered, according to the work it is required to do.

To obtain a spring-temper, take a piece of Russia iron one-half inch wide and four to six inches long, fold it lengthwise nearly upon itself, making a trough; by putting one or more broaches into this trough and holding it in the flame of a lamp, any desired degree of temper may be obtained.

To make broaches full soft, take a very small metal tube, put the broaches into it and close both ends; heat to a cherry red and let it cool before opening the tube. The toughness of these broaches may be tested by bending or twisting them into any desired form. With a sharp chisel or a well tempered knife, cut fine, short barbs on the broach, from its point back one-eighth or

one-fourth of an inch. We now have for 35 cts. per dozen, a much better article than can be obtained at a dental depot for 75 cts.

With a broach prepared in this way, enter nearly or quite to the apex of the root. The pulp is supposed to be dead, as the treatment of the live pulp is a topic outside of the present paper. After giving it from one to three turns, according to the amount of resistance, withdraw the broach, when, if the pulp has been carefully cut off at the juncture of the drill hole and the canal, in case of recent death of the pulp, that portion of the pulp which is nearest the apex will have been brought out. If the pulp has been dead a sufficient length of time to have separation complete, there will be no hemorrhage.

The next article to us, we will call, for want of a better name, a paper point. It is made in the following manner: from a sheet of bibulous paper, not Japanese, cut a strip three-fourths of an inch wide; from this strip cut at such an angle as to make three-cornered pieces one or one and one-fourth inches long. Fold the nearest corners together, doubling the strip its entire length; then roll and twist between the thumb and finger until it is round and hard its entire length.

There are many things that may be said in favor of these paper points. They are not very apt to push any particles of septic matter through the foramen. Any loose septic substance adheres to them so readily, that they assist greatly in cleansing the canal. They may be turned in the canal, and, being so similar in taper, wipe the sides without forcing the débris toward the apex of the root. They will enter the finest root canal as far as a broach can be passed.

With one of these paper points, enter the root canal to the apex, let rest a few moments to drink up the pus globules, remove and introduce another, and so on until they come out dry; then dip one in carbolic acid or creosote, introduce and let it rest; while, with a pair of slender-pointed gold carriers, we take up a part of a drop of the same fluid and carry to the first end of the drill hole, carefully separate the points of the tweezers, and the fluid will run directly into the canal by capillary attraction. After another thorough drying with paper points, this part of the canal is ready for filling; and the permanent filling for this part of the canal should invariably be done at the same sitting, even if no other portion of the root canal is filled at this

time. After this is done, proceed to open into the rest of the canal and the pulp chamber, and prepare the same for filling. This had been carefully omitted up to this time, lest chips of the dentine get into the canal and cause annoyance.

Suppose another condition—a case in which the pulp has been dead a long time, no indications of abscess having occurred. One very important object is to avoid forcing any septic substance through the apical foramen, which is liable to be enlarged. The broach should be introduced very cautiously, part way at a time, and removed, until the apex is reached; taking care not to go through, so as to cause much disturbance of the soft tissues. A slight hemorrhage by a single prick of the broach does no harm, and may be beneficial by aiding the removal of any particles of septic matter that may be in the apical foramen or slightly beyond it. The same may be done by H_2O_2 , but the method here given is quite as successful without its use.

After removing as much septic substance as possible with the broach, use one or two paper points to dry the canal, if there is much moisture present; then introduce carbolic acid or creosote as before described, and dry as many times as is necessary to have the paper come out clean. In case the paper points reach through the apex so as to cause pain, indicated by a more or less perceptible tremor of the face, these points should be broken off leaving them large enough to prevent their passing the foramen; this will be of utility as we proceed.

One case more. If the pulp has been dead for some time and suppuration has commenced but quite recently, on opening the pulp chamber and removing the putrescent pulp, the pain is relieved by its discharging pus through the tooth for a few minutes. When the perceptible discharge ceases, dry the canal as before described, wash out and dry again and again, until there is no more discharge and the soreness is gone. The root may then be prepared and filled at once. Give the patient a few doses of mercurious vivus or solubillis 3x, and there will be no further trouble with the tooth.

I believe I was the first to introduce root canal pluggers made of piano-wire, using pen-holders for handles. Several years afterward I ordered some steel handles made by our much lamented S. S. White, who soon offered the same kind of handles for sale, illustrated in the *Cosmos*.

Pluggers for this purpose should be spring-tempered, and yet soft enough to be bent and re-bent a great number of times; and this wire possesses the necessary qualities in a remarkable degree. These may be filed down to any desired size or shape, but the less they are filed the tougher they remain. Instead of filing much, use different sizes of wire. A little experience will enable one to put a very good point on them. Take hold of the wire after it is filed to the desired size, with a pair of flat-nosed pliers, and bend a little back and forth until it breaks off. Sharpen the other end of the wire three-cornered, and drill the wood slightly, if hard, grasp the wire with strong pliers and drive into the wood. The wood handles answer quite as well as steel.

Armed with several sizes of these pluggers, proceed to prepare the filling. Of all the materials that have been tried and recommended for this purpose during the last third of a century, none, in our hands, gives such perfect satisfaction as gold. This may be prepared so as to make a bad filling; or, it may be prepared so as to make the best possible filling in all ordinary cases. It required years of experimenting to learn the best method of preparing and using gold for this purpose; but, when prepared and used in the right manner, it will fill the finest root canal as far as the broach can be passed, and yet it need seldom, if ever, be pushed through the foramen.

The gold should be prepared in the following manner: tear the gold into irregularly shaped pieces, from one-half to three-fourths of an inch wide, and from three-fourths to one and one-fourth inches long; lay it upon the palm of the hand, lengthwise of the wrinkle caused by closing the hand; lay a long, straight, fine plugger on the gold lengthwise the wrinkle; half flex the fingers, keeping the fingers as straight as possible; withdraw the plugger, keeping the hand flexed; strike the plugger down into the fold of the hand repeatedly, until all of the gold is carried into the bottom of the fold of the hand. Now open the hand, lay the index finger lengthwise the gold and roll it (the gold) to and fro, forming the gold round and slender. Prepare many of these, varying in size. Select one as fine as the finest broach for the finest root canal; take it in the gold tweezers and carry it as far into the canal as the broach has been. If the canal is a large one, or if the foramen is enlarged, select a larger roll of gold. As the gold has not been twisted, it is easily upset, and there is

no occasion to push it through the foramen, provided we have ascertained the size of the foramen, and made the roll of gold too large to pass through.

There are various modes of ascertaining the size of an enlarged foramen, of which the following is the best that has not been mentioned: Pass a bur through, that will size it; follow it with a larger one, nearly through; measure accurately. A ball of gold, rolled hard to the size of the last bur, is placed as far up as the last bur went; the rest of the operation is simple.

Other methods of ascertaining the size of the foramen, use soft wood, a broach wound with cotton, etc.

Should the gold be forced through a little, it is as harmless as any insoluble substance. In a number of cases it has been worn thus projecting, for years without discomfort. Again, in using gold, there is no necessity of forcing air or anything else that is harmful through the foramen.

There is a satisfaction in feeling, as we proceed with the operation, that it is being perfectly performed, and that, when completed, it will be a success.

DISSEMINATION OF THE KNOWLEDGE OF DENTAL HYGIENE AMONG THE MASSES.*

BY L. P. BETHEL, D.D.S., TOLEDO, O.

It is not difficult to advance a theory as to how the dissemination of knowledge of dental hygiene among the masses may be done, but it does seem difficult to obtain a means that will be practical, feasible, and at the same time cover the entire ground.

Considerable has been said and written regarding this important subject, but as yet no definite plans in this direction have been adopted. With this matter in view, however, the American Dental Association have taken steps to inquire into the advisability of introducing the subject into the public schools. At their meeting in August, 1887, the following resolution was adopted:

Resolved, That Section II be directed to report at the next meeting of this association a plan or scheme for the introduction

* Read before the Northern Ohio Dental Society, at Cleveland, O., May, 1889.

of a course of elementary instruction in dental histology, anatomy and hygiene into our public schools.

The secretary of that section communicated with superintendents of various cities in relation to the introduction of elementary instruction in these branches into the schools. The following questions being asked :

First. According to your judgment, would you consider a course of lectures on the subjects mentioned, delivered at stated times by dentists or physicians, to be a benefit to the pupils?

Second. Do you think the body having control of education in your city would consider the matter favorably if it were indorsed and recommended by a professional body such as the American Dental Association?

Third. In what grade of the primary, grammar, or other schools would these lectures be most appropriate?

In his report at the last meeting of this Association in August, 1888, the secretary, Dr. Ottofy, said "that he received replies from thirty-two cities, representing a population of 4,060,000 in 1880, and an enrolled school population of 750,000 in 1885. Of the thirty-two replies, twenty-four superintendents believed that the instruction would be beneficial to the pupils; the cities which they represent now having a total school population of 600,000. Only five superintendents believed that such a course of instruction would be of no value, and the school population of the cities which they represent is only 25,000.

To the question whether various Boards of Education would permit the introduction of dental studies into the schools, twenty superintendents replied in the affirmative and nine superintendents did not believe that the school Boards would consider the subject favorably. A large majority are of the opinion that the high and grammar schools are most appropriate for the purpose."

Thus it will be seen that the majority heard from favor the introduction of such a course.

In States having laws requiring the study of anatomy, physiology, and hygiene, the introduction of suitable instruction in these branches would probably not be so difficult, as the more thoroughly prepared text could be added to the limited matter on dental hygiene already presented in the various text-books, or be taken up in its stead.

The States at the present time making the study of anatomy,

physiology and hygiene, with reference to the effects of alcohol and narcotics, compulsory in the public schools are: Maine, New Hampshire, Vermont, Connecticut, Rhode Island, New York, Pennsylvania, Delaware, Maryland, District of Columbia, West Virginia, and North Carolina.

The States and Territories requiring teachers to be examined in this branch and recommending it to be taught in the public schools yet not making it compulsory are: South Carolina, Florida, Kentucky, Alabama, Ohio, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Dakota, Nebraska, Kansas, Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Nevada, Oregon, and California. The remaining States and Territories, so far as we can learn, have made no requirements in this direction.

As to the proper grade or grades for this study should it not be introduced into all of them by means of oral and other instruction, together with suitable charts, models, books, and helps of various kinds according to the capabilities of the pupils? Let the instruction in the primary departments be oral, but in the higher grades let text-books be used in connection with oral instruction. The manner of presenting this study to be left entirely to the discretion of the teachers.

Lectures from various dentists or physicians may be given pupils or teachers at stated times, if thought best. This means would probably prove beneficial in at least stimulating a desire for the study, but should be carried on in such a manner as not to cause enmity among practitioners or strife to show a superiority of one dentist over another. The school Boards should arrange this matter themselves with due consideration and not at the solicitation of any particular practitioner, sect or sects. It might not be out of place for the acting dental society to instruct Boards regarding the selection of lecturers and remind them that, as a rule, the recognized dental society members keep thoroughly abreast of the rapid progress dentistry is making in all its departments. Again, the Boards might see an advantage in the selection of various practitioners to lecture or present papers bearing upon this subject. Special lectures to teachers alone or to teachers and advanced students by capable and non-resident dentists might be the means of keeping up or adding to the interest of the study. It might be well for State or District Societies to

appoint representatives to lecture in certain territories throughout each State, in school or other suitable halls, to teachers and students the public being invited to attend, and also lecture specially to teachers. Money for the purpose could be raised in various ways to be determined by official action. Teachers should be thoroughly interested in the study themselves and thoroughly instructed as to the great necessity of early and constant attention to the dental organs. Appropriate articles should be prepared to aid them in their instruction by chosen members of a dental society, bound together, in suitable book or pamphlet form, and furnished direct to teachers at cost. Text-books for students should be separately prepared in the same manner and also furnished at cost.

We can hardly expect the study to be made compulsory and whatever is accomplished in the school must be done through impressing superintendents, teachers, and school-boards of its great necessity.

While the introduction of this important study into the public schools is of great value, we cannot expect the best general results from this teaching of children alone. The parents must be educated as well and other means to accomplish this end must be devised. How then can we reach the parents?

THROUGH THE DENTAL OFFICE.

Here an opportunity is afforded for imparting advice of a miscellaneous character to patients according to cases in hand and the surrounding circumstances.

To further the knowledge of dental hygiene, pamphlets could be prepared by dentists themselves, or suitable articles be prepared by society members, bound together in book or pamphlet form, issued by the society and furnished to dentists at cost, for distribution to patients. It might be well to have such works prepared and issued by State societies though under the supervision and approval of the American Dental Association. Thus a greater variety would be at command and an occasional change of books could be made, if desired, which might prove beneficial in several ways. Or let societies prepare copy for and print a regular publication, issued by the society and furnished dentists for distribution among their patients.

Another means of disseminating this knowledge is:

THROUGH PHYSICIANS.

Physicians have, perhaps, a better opportunity to advise the general public, especially regarding the teeth of children, than do dentists. When called to a case they almost invariably note the condition of the tongue and other portions of the oral cavity in making up their diagnosis. If interested in the teeth how easily they could note their general condition, as regards caries, deposits, irregularity and general appearance. If in need of the dentist's care, physicians should note the conditions and at an opportune time make a more thorough examination and advise the parents of the fact, recommending as speedy attention to the matter as possible, explaining how decayed teeth or vitiated deposits assist in the production of disease. If not heeded before the time of a subsequent visit the request should be renewed. Advice from physicians would, as a rule, be heeded more promptly than that of the dentist, as too many people get the false impression that he is trying to "work up his trade."

Here another question arises: What will influence physicians to make these observations? At the present stage of progress, physicians and dentists should be intimate, understand each other and work harmoniously together. But few medical schools have special lectures on the teeth and their diseases, and what information the student acquires on this subject is from the subject matter in the various text-books which is indeed very limited. Physicians in general do not fully realize the necessity of careful attention to these organs. There is so much in medicine of direct importance to them that they are apt to neglect this subject even though the necessity for it be clearly pointed out. Far too many have held and still hold to the opinion that the decayed and aching teeth "must come out," and the forceps are directly applied. They are not familiar with the advancement the dental profession has made in the past few years and the present and improved methods in dental practice. Those who have neglected this study should receive instruction from the dentist regarding diseased teeth, their management, and all the different operations performed and conditions favoring each operation, that they may be able to differentiate and give prudent advice concerning them. The dentists in turn should receive such instruction from physicians, or suitable text-books, as will enable them to recognize and correctly diagnose abnormal conditions of

the mouth and associate parts that should receive the attention of the physician, and recommend their patients' attention to the same. In this way early caries, irregularity, etc., would receive attention from the dentist, early tumors, cancers, and other abnormal conditions receive attention from the physician that otherwise might be overlooked or neglected until disastrous results followed. This interchangeable work would prove profitable to both and vastly beneficial to the patients of each.

Another means is :

THROUGH THE PRESS.

Articles should be prepared for the press by competent dentists, selected by associations for the purpose, and furnished to dentists at cost. Arrangements can be easily made for publishing in various country and city papers without cost to the dentist. If people have, through other sources had their attention called to the necessity of caring for the teeth, these articles would be apt to attract particular attention and be read with more interest. Such articles should be carefully prepared, short, concise, definite and clear. A series of articles printed in some of our leading magazines would have their weight, and especially if presented through such mediums as the *Chautauquan* or appear in the regular *Chautauqua* course. The practical articles prepared can be bound in book or pamphlet form and these furnished at cost which would probably bring them within reach of all reading classes.

Another method is :

THROUGH LECTURES.

Suitable lectures given to the public by non-resident dentists as before stated, would be an aid. To be the most effective all these different means should be carried on at the same time and the public thoroughly aroused as to the necessity for this instruction. It seems as though State societies should oversee the work in their own States, for people of different sections of the country differ so in their tastes and habits, that it is necessary that those fully acquainted with their peculiarities should deal with them, realizing better just the manner in which the most good can be accomplished, and where and how to expend the greatest effort. The State societies may be under the general control of the

American if need be. Let the American represent the head and the State societies the hands that they may work harmoniously together in solving this perplexed question and bringing about a much needed reform.

In conclusion let us summarize the various methods herein advocated for the dissemination of the knowledge of dental hygiene among the masses:

First. Through the schools.

Second. Through the dental office.

Third. Through physicians.

Fourth. Through the periodicals.

Fifth. Through books and pamphlets.

Sixth. Through lectures.

As enumerated we have endeavored to set forth means for the advancement of this subject, but have made no attempt to arrange as to the order. Perhaps preparatory lectures should precede the other means in some localities, or other arrangement be advisable, all of which may be determined at a subsequent period.

Whatever is done, however, must be by united effort and through various agencies, to accomplish the best results. Too little attention has been given the subject, and it is hoped that it will soon be taken up in a systematic manner by the profession, and the proper effort made for its thorough dissemination.

IS IT OUR DUTY TO GIVE ADVICE TO MOTHERS DURING GESTATION?*

BY J. R. BELL, D.D.S., CLEVELAND, O.

A MORE effectual method of conveying to mothers instruction upon prenatal influences, gestation, and a knowledge of the eruption, care, and shedding of deciduous teeth, together with the child's nourishment and care of the permanent set, and the time of their eruption, seems important, as we see and hear the ignorance of otherwise intelligent parents upon these subjects. Oftentimes mothers are advised by a nurse to use a milk diet, by some one else a vegetable, meat, or mixed one, and so on such con-

* Read before the Northern Ohio Dental Society, at Cleveland, O., May, 1889.

flicting advice confusing the ideas of the delicate mother almost to desperation for want of proper advice from reliable authority. The diet should be simple, nutritious, and adapted to the special requirements of the individual, and the condition of her digestive organs. There is often a craving in pregnancy for unusual articles of food which may sometimes be allowed providing they do not derange the stomach. Sometimes there is an abnormal appetite due to gastric catarrh, which, if indulged in, is apt to give rise to hereditary gastric catarrh in the child. Tea, coffee, or highly seasoned food should be used only in moderation if at all, alcoholic stimulants and narcotics, never. A plethoric condition should be avoided as much as possible, though it rarely occurs, we have seen it in some, and in others edemia, either jeopardize life, and are predisposing to puerperal convulsions in both mother and child. The diet of such an one should be chiefly of solid food. A too spare diet is on the other hand no less reprehensible, but this condition is seldom met with in this land of plenty, except among the very poor who, under such circumstances, give birth to but feeble and unhealthy children who perish without even having made the acquaintance of the dentist. A poor appetite during maternity is abnormal and should have the attention of the physician or dentist. There is usually gastritis at this time which simply means chronic inflammation of the stomach and needs immediate treatment. Some hygienists advise the avoidance of bone making food; this should be condemned not only for its effect on the teeth, but it is liable also to cause foetide, and if not, it impairs the child's whole osseous system. The plea that it renders labor easy is an inducement to the mother, but is akin to producing abortion to save the mother's health, who in both cases suffers equally with her offspring. The deleterious effects of iron, quinine, and all acids should be made known to this class of people in same way, just how I am not prepared to advise, but trust these thoughts may enable us to solve the problem by concerted action.

I have spoken first of food, but there are other equally important considerations. The clothing should be warm and worn with loose bands. The expectant parent should not be kept in captivity, but should exercise in the open air daily. There is during this period an unusual susceptibility to mental impressions. This should be borne in mind, but should not prevent the

expectant mother from securing dental services if needed, nor the dentist from performing them, providing they are done with due delicacy and good judgment. And why should it not be done when our practice is so largely reparative of the nervous system, and the prevention of weakness and decay of the whole human organism? The laws of diet should especially be observed by weak, spare mothers, for it is with this class the devastating work goes on in their absence from us as patients, and we find teeth that were in perfect order shortly before, in a fearful state of decay, and want of proper care and nourishment is plainly apparent. One mother was heard to say she "never wanted a child for it destroyed not only health, but the teeth, too, and it was so with several of her acquaintances." Rich soups, milk toast, starchy and fatty foods are generally indicated for these spare, nervous mothers. It is considered safe to advise ripe fruits and farinaceous foods in all cases, and last but not least, sitz baths once a day. By this course the life of the mother becomes nearly normal, and at birth both mother and child have more physical energy and less nervous susceptibility. Manual training, calisthenics, and temperance, and hygienic instruction in schools will soon help to complete the development thus well begun. We do not think it unsafe to predict that the day is not far distant when it will be an important part of our practice to educate mothers in maternal management during gestation. There are many points on this subject which might be elaborated upon with profit which are omitted for fear of a lack of popular sympathy upon the same.

EARLY ANÆSTHESIA BY SULPHURIC ETHER.

BY A. BERRY, D.D.S., CINCINNATI, O.

BEFORE the employment of nitrous oxide for anæsthetic uses in dental practice, it was resorted to occasionally at schools in which chemistry was taught, for amusement. The gas in bladders was inhaled by each member of the class standing until he felt its exhilarating effect, when, as the performance was for fun, it was usually followed by a hearty burst of laughter, but sometimes by pugnacious exhibitions.

My friend, Dr. Thompson, Spring Ridge, Miss., who passed away a few years ago, told me that when a student at North Carolina College, while his class was inhaling gas, the supply was exhausted before all had taken it.

Prof. Olmsted states it had been said that sulphuric ether would produce the same effect as nitrous oxide. Dr. T. with a companion went into the laboratory and saturating a sponge with sulphuric ether, and with the aid of the other, commenced inhaling it. He soon saw his assistant retreating a little as if in fear. The next the Doctor knew he was out on the campus with his companion down and beating him. This occurred about seventy years ago and is probably the first well authenticated case of the inhalation of sulphuric ether for anæsthetic uses.

Correspondence.

"I charge you that this epistle be read."

JOHNSTOWN AND HER DENTISTS.

EDITOR OHIO JOURNAL :—None of Johnstown's dentists were extremely rich, but each enjoyed a good field of practice, and these were all liberally patronized. While our prices for work would not be equal to those of some larger city, still we had fair prices, and our services were appreciated. The loss to Johnstown's dentists has been complete in most cases, and even where one or two may have part, or all of their offices left them, still they are deprived of their practice, and probably will be so for the greater part of the year to come; all, with probably one exception, have expressed themselves as determined to remain and await the rebuilding of the town; besides the pecuniary loss most of them have lost parts of their families or relatives.

THEIR LOSSES.—Dr. S. A. Pedeu, office and furniture not damaged, but he loses all his household goods, and other possessions, to the value of \$2,000. Dr. Pedeu is a graduate of the Baltimore College of the class of '79, and has been in practice in Johnstown for the past eleven years. He is 41 years of age, married, has wife and one child,—loses in relatives brother-in-law and wife of same. (Dr. Pedeu was a student under Dr. Wagoner.)

Dr. Wm. Hanna, single, age 25. Preceptor, Dr. Duncan. Graduate of old Baltimore College of class of '88 and '89. Had only recently commenced practice. Office entirely swept away. Loss about \$800. Loses no relatives.

Dr. Duncan, age 28, graduate of Baltimore College, class of '84, has been in practice in Johnstown for five years. His preceptor was Dr. G. W. Simpson, Indiana, Pa. Dr. Duncan's loss was severe; for he not only loses his house and office, but his wife, who was carried from him and he had no power to rescue her. They were trying to escape, and were obliged to climb over some freight cars. The Doctor succeeded in getting up and was assisting his wife, when the coupling between them broke and the car she was clinging to was swept away. Her body was recovered one week afterward about two miles from where they lived. His financial loss is \$5,800, \$5,000 on his house, and \$800 on his office.

Dr. Hager, age 25, single, graduate of Pennsylvania College, of class of '85, has been in practice for four years in Johnstown. His office was flooded, and furniture and instruments almost entirely ruined. Loss on office \$300. In addition to this, his interest in real estate, to the value of about \$90,000. His family loss was also very severe, having lost his mother and three sisters.

Dr. Geo. Wagoner was lost, together with his entire family, and all his property. The Doctor was aged 63 years, and had been in practice in Johnstown for twenty-nine years. His family consisted of his wife, aged 57 years, three daughters who resided at home, Cora aged 22, Lizzie aged 20, and Frankie aged 17. Besides these there was lost a married daughter, her husband and two children, making nine in all. The Doctor was one of the old land-marks in the dental profession in this place. He was loved and respected by all, and his family grown daughters were talented young ladies who were held in high esteem by all who knew them. The Doctor has one son, Dr. Geo. Wagoner, M.D., and two married daughters who are all that remain of his family. His financial loss was about \$10,000. The bodies of the Doctor and two of his daughters have been recovered, the others are still missing.

Dr. J. P. Thompson, aged 65 years, had no family loss, but loses in household and office \$3,000 or more. Dr. Thompson studied medicine in '49, attended medical lectures '51-2-3 at Jefferson College. After a few years he took up the practice of

dentistry. When the late civil war broke out he became a surgeon in the army and in that way served his country for several years, since which time he has been actively engaged in the practice of dentistry, eleven years of which have been spent in Johnstown. Although his office was entirely destroyed, he managed to save a few of his instruments, and one chair in good condition.

Dr. James Hinchman, age 29, graduate of Pennsylvania College, has been in practice in Johnstown for the past two and one-half years, married, and has one child, all were saved, but his office and everything he had entirely destroyed. He places his loss at \$800.

Harry Fry, age 24, has been taking care of the practice since the death of his father two years ago. Harry had attended one course of lectures at Baltimore, and expected to return to finish his course this fall. His office was entirely destroyed. He places his loss at \$600. In addition he loses his sister and her one child.

Dr. S. C. Poland, wife and two children, he loses his two children, Walter aged 5 and Freddie aged 3, and his wife was badly injured. He is a graduate of the Ohio Dental College, of the class of '79 and '80. His preceptor was Dr. Geo. Watt, of Xenia, Ohio. He has been engaged in practice in Johnstown for nine years. His loss is \$3,000, house completely gone, nothing found; office standing, but furniture and instruments entirely ruined, except chair which can be repaired.

S. C. POLAND, D.D.S.

Editor's Specials.

"Write the Vision and make it plain."

DEATH'S DOINGS.

WE have all believed that "Death delights in a shining mark," but now we *feel* that our faith has been well founded. Doctor Rehwinkel is dead. Not one of us expected him to live always here; but who was ready for the news of his death? Not the writer of this, for he expected to go before him. A man so

active, so cordial and so wide-awake—we didn't think of his dying. But he is gone! And who next?

Doctor Frederick H. Rehwinkel, as we are informed, died of cerebral apoplexy, at his home in Chillicothe, O., June 8th, 1889. He was born June 15th, 1825, at Celle, Hanover. He studied medicine at his native place, and graduated at the University of Gottingen. He came to America in 1849, and practiced medicine at Natchez. He was there but a short time, for he was later associated with Dr. Pulte, at Cincinnati. In 1850 he began practice in Chillicothe. His taste led in the direction of special practice, and he turned to dental surgery, and received the degree of D.D.S. from the Baltimore College of Dental Surgery in 1855. From that date he was recognized as one of the leaders of the dental profession, was often placed in important positions, and never disappointed the trust of his fellow members.

In general science and literature, Dr. R. had few, if any superiors in the profession. Though his pronunciation of English still betrayed his nativity, yet his pen put forth such pure Anglo-Saxon that criticism was silent.

In the Mississippi Valley Association, the Am. Dental Convention, Am. Dental Association, and especially in the Ohio State Dental Society, Dr. R. was a power for good and against evil. Personally he would endure much for a good cause; but he would not permit a blow at the honor of his profession, nor allow its flag to be trailed in the dust. He presided at the Chicago meeting of the Am. Dental Association, in 1877. He was also a member of the American Medical Association, and at the date of his death was president of the "Dental and Oral" Section. He was an excellent presiding officer. Indeed he was "excellent" wherever he was; for such a complete combination of wit and wisdom, dignity and cheerfulness was seldom seen. *Manliness*, if his character must be described in one word, suggests itself.

The full sympathy of the JOURNAL goes out to the stricken family.

MRS. ROBERT VAN VALZAH.

THE many friends of Dr. Robert Van Valzah, Terre Haute, Ind., will be grieved to learn of the death of his wife which occurred at that place on July 12th, 1889.

DR. CALVIN R. TAFT.

DOCTOR CALVIN REED TAFT died on Saturday, June —, 1889, aged probably about 59 years. The writer's acquaintance with him began before he had shed his incisor teeth, and notwithstanding the difference in age, our acquaintance was intimate, and our friendship mutual. In smiting our profession Death could not have stricken closer to us, except in a very few cases. We had much to do in caring for his mental development. In the public schools he was our pupil by day, and our room-mate by night. We have had pupils more apt, but none more retentive. We are not able to recall an instance of having to explain anything to him a second time. If he had possessed a higher opinion of his own abilities, the profession would have been the gainer. He was modest to a fault. He wielded a ready pen, and his powers of sarcasm were formidable.

We are not familiar with the facts of his last illness, but have understood the trouble was with the brain—probably an apoplectic seizure. We did not hear of his illness previous to his death; and we were too ill to attend his funeral.

Dr. T. was born in southern Ohio. In 1842 his parents moved from Ripley, to Xenia, and most of his time till he entered the profession was spent in and about Xenia. He studied with his older brother, Prof. J. Taft, and was a graduate of the Ohio College of Dental Surgery. He practiced, for awhile, in Cambridge, Ohio. In 1854 he formed a partnership with Dr. M. De Camp, of Mansfield, Ohio, and practiced there till the war broke out, when he enlisted in the service, and was adjutant of the 15th O. V. I. For sometime he was on the staff of General Wood. He was a brave, faithful soldier, but aged rapidly under the influence of camp-life.

For a short time after the war he engaged in other business, but soon resumed practice, in partnership with his brother, Dr. J. Taft. For some years he has been alone, his office on 8th street, west of Vine, Cincinnati. For several years he has resided at Wyoming, near Cincinnati, and it seemed to give him pleasure to beautify his home and surroundings. He was married at Mansfield, and is now buried there. He leaves a widow to mourn

her bereavement. His only child, a son, died in infancy. His death leaves Dr. J. Taft as the only survivor of the family.

We had few better dentists than C. R. Taft, and few better men. He was a member of the Protestant Episcopal Church, and was active and influential. The JOURNAL extends sympathy to the bereaved widow, and the lonely brother. Our "brother shall rise again."

RESOLUTIONS ON THE DEATH OF DR. C. R. TAFT.

WHEREAS, Through the dispensation of an all-wise Providence, our professional brother and friend, Dr. Calvin R. Taft, has been called from a sphere of usefulness in our midst to his eternal rest; and

WHEREAS, We are able in sincerity to affirm that the conduct of his daily life evinced a kindliness of heart endearing him to all, both in and out of the dental profession, with whom he came in contact; and

WHEREAS, We, his professional brothers, during years of intercourse with him, have noted only his estimable qualities of charity, forbearance and unselfish regard for others, which now recur to us as sacred memories;

Resolved, That we, his professional intimates, unite with the family and mourning friends, in sympathy, presenting this testimonial of our regard for one whose loss comes to us severally as that of a personal friend.

Resolved, That a draft of these resolutions be furnished the family, the secular press, and the various dental journals.

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| J. I. TAYLOR, | H. L. MOORE, |
| W. D. PHILLIPS, | JAS. IRWIN, |
| F. W. SAGE, | D. W. CLANCEY, |
| C. M. WRIGHT, | GRANT MOLLYNEAUX, |
| J. G. CAMERON, | E. G. BETTY, |
| H. A. SMITH, | F. A. HUNTER, |
| W. N. WILLIAMS, | M. H. FLETCHER, |
| • O. N. HEISE, | <i>Committee.</i> |

A PRINCE OF HUMORISTS DEAD.

For years past lovers of humor have read and laughed over the witticisms of Philip H. Welch, as they have appeared in the fun columns of the various periodicals. Only natural artists make any show in the line of humor. One would suppose that a man who can scarcely place two words together without a display of wit, is a man in happy circumstances, and with cheerful surroundings; but while amusing and entertaining us by his humor, Mr. W. was dying with cancer. The fell destroyer eat away a part of his tongue, and later, appeared on his breast, and

penetrated to vital parts. Yet to the last, tears of wit trickled from his pen, and nuggets of humor dropped from the point of his sharpened pencil. Doing this because it was easy? No! but because he *could*, and because it meant *bread*, which he *couldn't* win otherwise. Did ever a hero die more grandly?

Now, if any reader of the JOURNAL thinks it is nice and easy to write for the entertainment or information of others, in words politely cheerful, at least, while in the grasp of a disease whose only promise is pain from which death alone affords a means of escape, we pray he may never have to try the experiment.

Steps have been taken to raise a fund for his family, but such efforts do not generally amount to much.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

TO DESTROY THE ODOR OF IODOFORM.—DR. MONROE, in the *Medical Summary*, says that aqua heliotrope following the application of iodoform will destroy its odor, and also wash from the hands the offensive effects of casual contact with the drug.

COTTON AS A FILLING FOR ROOT CANALS.—DR. JOS. HEAD recommends cotton soaked in carbolized cosmoline as a filling for root canals, claiming it to be water tight and answering all requirements of a root filling, also in case of necessity, it is easily removed.

REMOVAL OF GREEN STAIN.—To remove the *green stain* which is noticed at the gum margins, particularly in children of 12 to 14 years of age, nothing is so effective as the use of tincture of iodine, used on a stick of orange wood, followed by the use of powdered pumice and water and final polishing with polishing brushes in the dental engine.—DR. CHUPEIN.

ROOT TRIMMER.—DR. A. O. HUNT considers the aluminum disk the best instrument to use between the teeth for trimming down margins of the roots, or separating teeth where they come

together closely. The disk should be lubricated with corundoline (corundum and glycerine mixed together) and run rapidly but steadily. Should the gum be cut it is a clean cut and no mutilation occurs.

FILLING UNDERCUTS.—There is difficulty which often occurs with proximal cavities. You will frequently find extensive caries under the enamel cusps. You will have large undercuts, and such undercuts are difficult to fill with gold. It is good practice to fill these spaces first with oxychloride or oxyphosphate of zinc, and I prefer the former, making the cavity more simple for the gold.—DR. CRÔUSE, *Ill. So.*

OBJECTIONS TO THE USE OF THE MATRIX IN FILLING WITH AMALGAM.—DR. WRIGHT says: I wish to call attention to an objection to the matrix. In using a matrix in amalgam fillings, you force your surplus mercury, of which there must be some, into a feather-edge which overlaps the edge of your tooth; then most teeth to be filled with amalgam are large cavities which extend pretty well up the cervical wall of the tooth; and most teeth, or a good many of them, are concave at the cervical wall. If you use a matrix, you have got to lap the mercury over walls, which makes it impossible to finish after it is hard. My method of finishing amalgam fillings is to finish them when I make them—that is, to shape them without the matrix. If you want to burnish it or polish it afterward, I would say it is all right; the shaping of the amalgam filling should be done at the time the filling is made, and there will be no overlapping on the edge of the cavity.

IODIZED PAPER FOR ANTISEPTICISING CANALS.—In a communication addressed to the Société des Pharmaciens de la Côte d'Or, M. EYMONNET suggests the use, in the place of iodized cotton, or applications of tincture of iodine, of a preparation that he calls "papier iodogene," which, when moistened with water, disengages iodine in the nascent state. The "papier" consists of one sheet of paper impregnated with a mixture of potassium iodate and tartaric acid, and dried, and another steeped in solution of potassium iodide and dried. Between these two a thin sheet of paper is placed, and the three are stuck together. When required for use the "papier" is moistened and applied with a covering of

sheet gutta-percha. The tartaric acid attacks the potassium iodide, liberating hydriodic acid, and this reacts with the iodic acid from the iodate, setting free the iodine. The reaction is said to go on without elevation of temperature, the sensation of warmth experienced being due to the revulsion set up by the nascent iodine. This gradually becomes more accentuated, but is tolerable for the forty-five minutes during which the reaction lasts, by which time the originally blackened paper has become of a straw yellow tint. The use of this so-called *papier iodogene* for rendering pulp chambers and root canals aseptic will at once suggest itself to dentists. We have at the same time material easily applied, and capable of a very wide range of utility.

MATRIX AND SEPARATION.—Relative to depending upon orange-wood wedges with which to obtain the proper amount of separation and perfect exposure of the cervical margin—where the decay has extended beneath the gum. A better practice, in my estimation, is in the use of a matrix—preferably of aluminium. I hardly think this material is fully appreciated for matrices. It can be easily cut, bent and pounded to any desired shape or thickness, and is of sufficient rigidity to resist all required force. For the fillings under discussion, proximal cavities between bicuspid and molars, thin and curve one edge of the matrix so that it will pass between the gum and the cervical margin of the cavity. It should fit against the root, and bend partially around the tooth. This should be held firmly in place by a wedge, but not driven in at this stage of the operation with a view of *separating* the teeth. If the matrix is grooved on the outside, the wedge will not be forced against the gum. Use soft gold, tin, or tin and gold, and direct the packing force toward the matrix, filling first along the margin, and building the material back into the cavity as you progress. When the cavity is partially filled, remove wedge and matrix, and finish the surface of your partial filling. Now insert a wedge, or preferably a Perry separator, resting it on one side against the filling, and separate the teeth sufficiently to fully contour the crown.—DR. C. S. CASE, *Ill. So.*

AN EASY AND QUICK METHOD OF MAKING A COUNTER-DIE FOR SWAGING CUSPS FOR GOLD CROWNS.—DR. C. H. ROBINSON says: Make of sheet brass, using hard solder, a cup three-fourths of an

inch in diameter and half an inch deep, having a spur on one side by means of which it can be held in a pair of pliers; fill it with Melotte's fusible metal. Select a natural or artificial tooth for a model; fill the soft rubber ring that comes with Melotte's Moldine with plaster, and invest the tooth so that the cusps project out of the plaster as far as it is desired to copy them; when dry remove the rubber ring. Melt the metal in the cup, and just before it hardens in cooling, press the cusps of the tooth into it. The surplus metal will run over the sides of the cup, and a sharp and perfect counter-model will be secured, into which the gold plate can be swaged after the method of the S. S. W. die-plate, using the lead hubs or bullets. I also use for this purpose sheet lead $\frac{1}{16}$ of an inch thick, cut in strips $2\frac{1}{2}$ inches long and $\frac{1}{4}$ to $\frac{1}{2}$ an inch wide, one end of which is folded upon itself two or three times letter S fashion, the other end being long enough to hold it by. As it becomes flattened in swaging, it can be folded back and forth over the gold plate.

By having one or more of these cups and a sufficient selection of teeth already invested in plaster, it is but a moment's work to select the size desired, and make the counter-die. Should it lose its finer lines in swaging, it can be remelted and an exact duplicate obtained in less than a minute.—*Dent. Review.*

APPLYING THE RUBBER-DAM TO SHORT OR CONICAL TEETH.—
DR. BARRETT: I want to say this in regard to the way in which I overcome the difficulty in putting on a rubber-dam. I have had some clamps made on purpose for myself for use on the lower teeth with the edges serrated. Sometimes I put a piece of rubber over the clamp—that is, a thick rubber-dam—and frequently I slip over the edges of the rubber-dam a piece of rubber tubing; then dry the teeth exceedingly dry, and that will frequently hold very closely. There is still another way. I cut the point off from a brass pin and insert it between the teeth down next to the gum; let it be of such size as shall not work its way up through between the teeth. Now use a bicuspid clamp upon the posterior portion of the wisdom tooth, putting the rubber-dam not only over the edges of the clamp, but also over the end of the pin; the pin holds the rubber-dam over the anterior portion of the tooth, and the clamp so clasps the tooth as to hold it over the posterior part.

Sometimes I use cocaine upon the gums and afterwards put the clamp down upon the edge of the gum and hold it there. I use cocaine until I overcome the sensitiveness of it, and then take the clamp in the forceps, carry it down very carefully and set it sufficiently below the edge of the gum so as to hold it there, and it won't come off.

DR. MATTHEWS: I have succeeded sometimes in these cases by taking two wires, twisting the end and passing it over the tooth, and twisting the other end, and letting them stand out beyond. If you can get that wire down under the gum, then you can work the rubber dam, and hold it every time.—*W. Jour. report Kas. So.*

A GUIDE FOR PUNCHING THE RUBBER-DAM.—In punching the holes in the dam to apply it to the teeth, it frequently happens, that though care and apparent judgment seem to have been observed, that when this is applied to the teeth, the dam stands away, and does not lay smoothly over the patient's face, making anything but a neat application. We have lately made a device—which any dentist can make for himself—by which the application of the dam *can always* be made to lay over the teeth and face of the patients, smoothly—

Take a piece of stout paper and fold it on itself and sketch a line on it like one-half the bottom of an impression cup.

Draw on this at regular intervals small round marks, and punch them out with the rubber-dam punch.

When the paper is opened it will give a pattern like the whole of the bottom of an impression tray.

The pattern thus secured, it may be laid on a piece of *stout card board* and the form traced on it, and the holes punched out. The names of the teeth may be traced opposite each hole, and this stouter pattern used as a guide to punch the holes in the dam. For use, the end of the handle is laid at the upper edge of the dam, and in the center of the piece; and holes punched through the dam, by aid of this guide, according to the teeth it is desired to encircle, *by holding the guide steadily against the dam while punching.*

If it is desired to punch holes in the dam to encircle the lower teeth, as recommended when using the dam for cleansing tartar from the lower teeth, it will be necessary to put the handle

of the guide *about two inches* from the edge of the dam, so as to allow of a sufficient quantity of the dam to fall over the chin of the patient, as well as of a sufficient quantity to be taken upward over the upper lip to be secured by the rubber-dam holder so as to be out of the way of the operator.—Dr. CHUPEIN, *Dent. Off. & Lab.*

USE OF SOLUBLE MEDICATED GELATIN IN FISTULÆ AND AROUND THE ROOTS OF TEETH.—Dr. W. B. AMES says: Upon having my attention called to the efficacy of soluble medicated gelatin in the treatment of inflamed and suppurating mucous surfaces in different portions of the body it appeared that it might be employed to advantage in the treatment of fistulæ and pockets about the roots of teeth. After a thorough trial I am convinced that it is one of the most convenient, positive, painless, and cleanly methods of medication, in these conditions, that we have.

The preparations used are those of Dr. Chas. L. Mitchell, in which any medication desired can be obtained. With the anodynes, astringents, coagulants, alteratives, antiseptics, stimulants, sedatives, etc., available in Dr. Mitchell's list of preparations the demand in any condition can be met, but, inasmuch as the conditions for which we most often use a remedy in this form are those in which a mildly astringent coagulant action is desired, a small variety of preparations can be used in the treatment of all conditions presented. The pencils or bougies medicated with sulphate of zinc, or sulphate of zinc with carbolic acid, with an anodyne if desirable, can be used to advantage in most fistulæ and pockets about the roots of teeth, the facility with which they can be placed in contact with the diseased tissue being their chief recommendation. For fistulæ, a point of the proper length and size can be cut from the side of a pencil or bougie which, on account of its flexibility, can be readily passed to the extreme depth of the tract. For pockets about the roots of teeth a shaving can be taken from the surface of a pencil or bougie, which will be found to be especially adapted to deep and tortuous pockets. The form best suited for this purpose is the intra-uterine pencil, which is three inches long and three six-tenths inches in diameter. Small lachrymal bougies and fistulæ crayons are made, but by cutting the points from the large pencils the cost is reduced very materially.—*Dent. Review.*

SUPPORT FOR IMPLANTED TEETH.—As the planting of teeth is now becoming so common an operation, and probably destined to become more so, the importance of furnishing some means whereby a planted tooth may be firmly held and supported while it is becoming firm in its new position cannot be over-estimated. Lack of proper support is probably the cause of a large percentage of failures.

On each side of the space in which the tooth is to be planted is selected a suitable tooth. A strip of band material is made into the form of a loop, slipped over the tooth and drawn tightly about the same with a pair of flat-nosed pliers. It is then removed and soldered at the point of union, and the ends clipped off. Delicate pipes are now soldered to each of these bands, on the labial side and parallel to the axis of the tooth. After carefully drying the teeth, the bands are cemented in position. This may be done several hours or even days in advance of the operation of planting.

The tooth to be planted is banded and piped in the same manner already described, only the pipe is soldered to the band at right angles to the tooth. A piece of the gold wire of suitable length is cut which exactly fits these pipes. It is slipped through the pipe on the tooth to be planted, and each end is bent at right angles. The tooth is slipped into the socket already prepared. The ends of the wire are slipped through the pipes on the anchor teeth, and, as they pass through, are snipped off with a pair of wire cutters. This will also flatten the ends slightly, which will prevent the splint from coming out of the pipes.

I have frequently dispensed with the band and pipes which encircle the planted tooth, using instead a silk ligature, tying the same tightly around both tooth and splint. This simplifies the operation, and in most instances is quite sufficient.

Dr. John H. Martindale, of this city, has used this form of splint with success in a number of cases for the support of teeth which have been loosened by alveolar necrosis or pyorrhœa.

The advantages of this little device in ease of application, comfort to the patient, and, above all, cleanliness, offering so little refuge for bacteria, will, I think, be readily appreciated by all.—
EDWARD H. ANGLE in *Int. Jour.*

METHOD OF CROWNING.—I want to speak of preparing a root,

where, in all probability, the first decision would be to extract it, and not try to crown it at all. I will take an extreme case. (Illustrating on the black-board a root conical on its inner part.) Now here are thin walls and thin and ragged edges, and probably as difficult a case for crowning as we would have to put a band around; if we should make the effort to put a band around a tooth of this character, we would probably make a failure, because on pressure the bands, being forced up, would break these walls at the edges. Another thing that is always valuable in crown-work is thin platinum, rolled as thin as it can possibly be rolled; there is no gauge that I could give you that is sufficiently thin; the highest gauge I know of is 36, and that is too thick; at any rate, roll it as thin as possible. This is valuable in many places. I would take a thin piece of that and make it cone-shaped, so that it would lap (you all know the method of cutting a cone). Now the platinum is passed down into the root in this way, as far down as you can get it. Then by putting cotton up inside, a little piece at a time, with a round burnisher in your engine, force the cotton down against the sides until you have burnished the platinum against the inner wall; carry this operation on until the platinum rolls over the cervical edge. Now when you remove that, you will find, probably, an opening down through the cone of platinum; remove it with the cotton and all in place. Now prepare the root for a pin below the point of where the platinum comes toward the apex. Any method of setting a pin in there will answer. Now you get the length of the pin. I forgot to state that before you take the platinum out of the root, mark it in such a way that you will be able to put it back in the same position it was before, you can mark it with the scratch of an excavator or any other way. Put it back into the cavity and pass your pin down through here until it reaches the depth that you have adjusted for it. Fasten with wax so that the parts remaining will not separate or change position. This should be removed and invested in plaster; scald out your wax and fill in the portion between the pin and platinum with the bits of platinum and blow in coin gold.

You have your root in shape, and, with this pin ready to cement, you are ready to put on any kind of a crown that you may desire to. That is, you have strengthened these edges, rebuilt the roots, and made a root upon which you can make a

start and use any class of crowns, except those where the pin is attached or is baked in the tooth—for instance, a Logan crown. This may be cut off according to Stilwell's method and used.

You would be surprised to see how firm those crowns are. It is almost impossible to remove them; they are as firm as they would be in a root which had nothing removed but the pulp, or a favorable case of any kind.

When this is cemented in place you will have no material movement of this portion. I think the pin extending below the end of the cone is sufficient to give it steadiness; it will not move. I have two crowns of that character. One of them has been worn about eight years and is very firm indeed.—DR. A. O. HUNT, *report Kas. So. West. Jour.*

AN EXPLANATION.

At the last annual meeting of the American Dental Trade Association it was ordered that the following statement be published:

Following the organization of the American Dental Trade Association, seven years ago, there was for a time an apprehension among dentists that its effect, if not its object, would be to increase the prices of dental goods and in various ways to oppress the dental profession. This misconception of its purpose was of course diligently encouraged by those who preferred not to join the Association. As time passed, however, the great majority of the profession came to recognize that the practical working of the Association, so far from being in any way oppressive to them, was really an advantage. A very few have chosen to maintain the attitude of martyrs, and are still endeavoring to prejudice the minds of dentists regarding the Association, its objects, and its results.

Within the last year or two there has been more than usual effort to disseminate views in opposition to the Association. Not only in dental society meetings and in dental journals, but in newspapers there have been statements so at variance with the facts as to have all the effect of deliberate misrepresentation. The terms "dental trust," "pool," "combination," etc., have been employed with the view of arousing antipathy and antagonism,

through the impression sought to be created that the Association was open to the criticisms merited and bestowed on other organizations whose objects were conceded to be dishonorable if not unlawful. The Association has been referred to as "a combination to prevent competition, to perpetuate monopoly, and to squeeze the dentists."

In a published report of a union dental meeting held in Boston in July, 1888, the following preamble and resolutions are reported as having been adopted :

"WHEREAS, Certain manufacturers and dealers in dental instruments and materials have formed a combination known to the profession as the Dental Trade Association; and

"WHEREAS, The forming of such combination can only be an obstacle, retarding progress in the direction of scientific investigation, improvement, and higher professional attainment; therefore

"*Resolved*, That we consider the forming of such combination to be a reflection on the scientific and professional character of our profession.

"*Resolved*, That we invite all members of said combination to withdraw from the same, and we pledge them our hearty interest and support."

It is not easy to understand how the formation or the continuance of an association of merchants and manufacturers can retard "scientific investigation," interfere with "higher professional attainments," or "be a reflection on the scientific and professional character" of a profession. The resolutions were evidently prepared by one whose zeal was not tempered by knowledge, in an attempt to attack those who had no opportunity of defense or reply, and were adopted, without consideration, by those who fancied they had a grievance, without the ability to state its precise character. Most of the attacks that have been made upon the Association have been similarly vague and meaningless, and similarly calculated to impress the unprejudiced that any lack of a true "scientific and professional character" in their authors had other explanation than the existence of a trade association, and must have antedated its organization.

The Association at this, its first annual meeting since the publication of the quoted resolutions and other like attacks, deems it fitting to present in reply a brief account of its organization and objects.

The American Dental Trade Association was organized between seven and eight years ago. Its germ originated during a dental convention at a meeting, without preconcert, of five dealers, who were at that time in the habit of canvassing to some extent the same territory. The business in that section had been for some years in a most unsatisfactory condition. The original idea was limited to the suggestion of a local organization or board of trade, for the purpose of arriving at a better understanding among themselves. The subject, however, broadened, and it was finally decided to invite all dental dealers and manufacturers to unite in a trade association. After considerable discussion a plan of organization was matured, and at a meeting held at Niagara Falls in June, 1882, the Association was formed. It now numbers about seventy-five members, including most of the leading manufacturers and dealers in the trade.

Previous to this there had been very little harmony or kindly feeling among those engaged in the business. Although in active competition, most of them were strangers to each other; there were jealousies and suspicions which lead to doubtful dealing. There was likewise a time when there were no dental societies; when each man was working solely for himself, perhaps jealous of his brother practitioner, and unwilling to aid him professionally. All dentists now know the value of association, of a code of ethics, and of occasional meetings for discussions and friendly intercourse.

In almost every branch of business there are associations and boards of trade for the establishment of commercial ethics applicable to their specialty, and for the cultivation of kindly feeling. The general sentiment of the community is that such associations are desirable, and that their effect is beneficial. It remains for a few dentists to deny to those with whom they have their principal dealings that which they highly value for themselves, and which is freely accorded by the whole community to other branches of mercantile business.

The objects of the Dental Trade Association are set forth in the second article of its constitution, as follows:

“The objects of this Association are to reform abuses; to secure unity of action; to promote a friendly intercourse between its members; to avoid and adjust, as far as practicable, differences and misunderstandings between them, and, generally, to advance the interests of the trade in dental goods in the United States.”

Allusion has been made above to the inharmony which existed, and to some of the abuses which obtained between the members before their association, and which it was desirable to remove. The chief abuse which had grown up in the dealings of the members with the dental profession was discrimination of the rankest kind. It required the authority of the United States government to put a stop to unjust discriminations of the transportation companies of the country, and the interstate law has been everywhere approved as a long step in the right direction. The American Dental Trade Association undertook, of its own motion, to put a stop to discriminations in their own line of business, and to place all who dealt with its members upon the same plane of honorable and equitable treatment. Before that time there were, as there are now, regular list prices for goods, and the theory was that there were no discounts allowed from these prices, except in the case of a few articles which were charged at a lower rate when certain quantities were bought at one time. In practice this theory of no discounts was enforced at least nine times out of ten. The exceptions were when two or more eager salesmen were bidding against each other for the sale of a chair, an outfit, or large lot of goods, when oftentimes prices were accepted that left the dealer little or no profit. One case is on record where three dealers were bidding against each other for the sale of a chair, and the unfortunate one who finally made the sale sold the chair at precisely what he paid for it, and lost the freight from the factory to his store in the West. The correct theory of honorable mercantile dealing is that both parties shall be benefited by it, and although every one likes to buy as cheaply as possible, it is not believed that any fair-minded dentist would feel comfortable in the belief that circumstances were compelling his dealer to serve him without profit, any more than he would feel satisfied to accept a fee from a patient without having rendered him beneficial service.

The unjust discrimination is apparent from the fact that the very next customer for a chair who presented himself would have been charged full list price without any discount whatever, if he went to the dealer confidently, and other dealers could be kept from knowing his want. It was the large majority of confident buyers, who simply sent in their orders without question, who were discriminated against, while comparatively few were favored with discounts. The Association corrected this by establishing

list prices for time sales, and allowing what had never been generally done before, a discount for prompt cash of five per cent. on bills of \$50 and over, and ten per cent. on bills of \$150 on all goods except precious metals and such as were sold at a rebate for quantity, as teeth in lots. These discounts are now allowed to every one who pays cash. The result is that the dentists, as a body, pay less for their supplies, on the same list prices, than they did under the former system of discriminations in favor of a few, and the business is placed on an honorable, dignified basis.

Neither at the formation of the Association nor at any time since has the price of a single article been advanced because of its operations. On the contrary, a comparison of the rates of to-day with those prevailing eight years ago will show many, and in some instances large reductions. Further, these reductions have almost all been brought about by competition inside the Association. All the talk about "combination," "dental trust," "pool," etc., as affecting prices, is absolutely baseless. There is but one rule of the Association that bears at all upon prices. Manufacturers, who are in almost every instance retailers as well, fix the retail prices of their own goods, as they always did, but the members who handle those goods agree to abide by the manufacturers' prices, which formerly they did not always do. In other words, the manufacturers permit the dealers all over the country to make a profit on the sale of their productions, at their prices, on the simple agreement that they shall not be undersold on their own goods. But the manufacturer can change his prices whenever he chooses, without let or hindrance, the only stipulation being that he will notify those who are dealing in his goods, that they may conform to the changes. Furthermore, in the case of two or more manufacturers making the same grade of goods, each is free to make his own rates, without any reference to the others. Thus the White Company and Mr. Justi have at present the same list of prices for teeth, but each house can change its rates at will, without consultation with the other, or with any one in the Association.

Competition is also unrestricted; there is in no sense any pooling of interests, any limitation of production. Each member of the Association pushes his business "for all there is in it," just as though no Association was ever thought of. It could not be held together for a week on any other basis. It has been held together all these years on this foundation by a better acquaint-

ance with each other than formerly, by mutual respect and friendly intercourse, by honorable dealings with each other, and by absolute non-discrimination.

Can any fair-minded man, after the above candid statement of facts, find any ground for condemning the Association? Must it not be admitted that it has placed the business on a better foundation and on a more honorable plane than it ever before occupied? That it has operated and will continue to operate to the benefit of the dental profession is our profound conviction.

It must be conceded that it was a benefit to the profession to do away with discriminations; and the Association has been of positive advantage to the very large number of dentists that are remote from the manufacturers and larger dealers, by encouraging their local dealers and enabling them to carry a larger stock to meet current, every-day wants.

It would be a step backward to return to the condition of the trade that existed in certain sections of the country eight to ten years ago. If the Association should be broken up, it would not eventually benefit the profession, and it would not be the larger dealers and manufacturers who would chiefly suffer by it. Instead of being close monopolists, as has so often been charged, the larger manufacturers have to a certain extent allowed their hands to be tied by the Association, for the benefit of the general trade, and particularly of the smaller local dealers all over the country. Who does not realize that in any general scramble for business, regardless of whoever stood in the way, the greater capital and facilities of the large houses would speedily overcome the smaller ones, and thus give to the former, in the end, a much greater opportunity of "monopolizing" than is possible under the present system? With this statement of its objects and methods the American Dental Trade Association confidently appeals to the good sense of the dentists of the country for an unprejudiced acceptance of its well-meant efforts to help and not hinder the advancement of dental science and art, while seeking to establish and maintain a code of business ethics, as essential in its field as is the professional code to professional men.

THE AMERICAN DENTAL TRADE ASSOCIATION.

R. T. MORRISON, *President.*

LEE S. SMITH, *Secretary.*

NEW YORK, June 20, 1889.

IMPORTANT DISPATCH FROM DR. CROUSE.

DEAR DOCTOR:—Did you receive the circular and by-laws recently mailed to every dentist in the United States? If not, or if you have mislaid them we will gladly send you others.

Have you read the circular? If not, why not? If you have read it have you sent by-laws with membership fee of \$10.00, as requested? If not will you do so at once? Also send us history of any new cases you have or know of, as described in circular. We have already received description of many new cases, which will add valuable testimony in our favor in the coming contests. Many have already joined the association, but we want many more.

The amount of money required, of each one, is very small. The fee, however, will remain at \$10.00 until a certain number is obtained, after that it will be but just and in accord with similar organizations, that those who join shall pay a larger membership fee.

We feel sure, speaking from the advice of our attorneys, Messrs. Offield & Toule, that we will eventually be successful against all the claims of the Tooth Crown Company. Many are asking if it will not cost more to settle with that company if we *should* fail. We answer no! as the rates of licenses and royalty have already been established and such rates will be held as legal in cases of past infringements and future licenses.

But we cannot fail if dentists pull together. Will you help or hinder by holding back? Let us hear from you.

J. N. CROUSE, *Chairman.*

Societies.

"Wherewith one may edify another."

MEETINGS.

American Dental Association meets on Tuesday, August 6, 1889, at Saratoga.

Virginia State Dental Association meets in Charlottesville, Tuesday, August 19, 1889.

Southern Dental Association meets in Galveston, Texas, August 20, 1889.

Pennsylvania State Dental Society meets second Tuesday of September, 1889, at Philadelphia.

Ohio State Dental Society meets annually. Next meeting at Cleveland, last Tuesday of October, 1889.

AMERICAN DENTAL ASSOCIATION.

THE twenty-ninth annual meeting of the American Dental Association will be held at Saratoga Springs commencing at 10 o'clock A. M., Tuesday, August 6, 1889.

GEO. H. CUSHING,
Rec. Sec'y.

THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE National Association of Dental Faculties will meet in annual session at Saratoga, N. Y., on Monday, August 5th, 1889, at 10 o'clock A. M., the exact place of assembly to be announced later. *In August, 1888, this Association ordered that thereafter delegates should be required to present duly executed credentials.* Delegates are urged to report early on the date specified. Deans or Secretaries of the Colleges interested will please at once forward to the Secretary of the Association of Faculties single copies of their respective Announcements for 1889-90.

By direction of

JUNIUS E. CRAVENS,
Secretary.

O. A. HUNT,
President.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE next meeting of the National Association of Dental Examiners will be held in Saratoga, N. Y., Tuesday, August 5th, 9.30 A. M., and at other times during the week, between the sessions of the American Dental Association. It is important to have every State Board represented.

FRED. A. LEVY, D.D.S.,
Secretary.

TO THE EDITOR OF THE OHIO JOURNAL OF DENTAL SCIENCE—
Dear Sir:—Members of the American Dental Association, as well as others interested in the progress of the profession, are cordially requested to furnish contributions pertaining to dental education, literature and nomenclature, either in the form of papers or suggestions. Contributions should be in the hands of the officers of Section II on or before August 1, 1889.

Respectfully,

LOUIS OTTOFY, *Sec'y*,

70 Dearborn St., Chicago.

W. H. ATKINSON, *Chairman*,

41 E. 9th St., New York.

INDIANA STATE DENTAL ASSOCIATION.

OFFICERS elected as follows: T. A. Goodwin, President; C. A. Budd, 1st Vice-President; A. J. Smith, 2nd Vice-President; Merritt Wells, Treasurer; R. W. Van Valzah, Secretary. The next annual meeting will be held the last Tuesday of June, 1890, at Lake Maxinkuckee.

DENTAL TRADE ASSOCIATION.

OFFICERS for the ensuing year were elected as follows: R. T. Morrison, Nashville, Tenn., President; J. M. Ney, Hartford, Conn., 1st Vice-President; F. Kemp, St. Louis, Mo., 2nd Vice-President; J. R. B. Ransom, Toledo, O., Treasurer; Lee S. Smith, Pittsburg, Pa., Secretary. The next meeting will be held at Saratoga.

MICHIGAN STATE DENTAL ASSOCIATION.

OFFICERS for the ensuing year are: C. S. Case, Jackson, President; C. H. Dyer, Grand Rapids, 1st Vice-President; C. W. McNaughton, Grand Rapids, 2nd Vice-President; Wm. Cleland, Detroit, Secretary; H. K. Lathrop, Jr., Detroit, Treasurer; E. C. Moore, Detroit, Supt. of Clinics. F. L. Owen, Grand Rapids, H. C. Corns, Detroit, and G. H. Mosher, Jackson, Ex. Committee.

COLLEGE OF DENTAL SURGERY—MICHIGAN UNIVERSITY.

THE degree of Doctor of Dental Surgery was conferred upon the following:

Albert Edward Anderson, Eng.; Robert Burns Avery, Pa.; Harry Fielden Briggs, Eng.; Frank Seldon Buckley, A. B., Mich.; Charles Sumner Buttolph, Mich.; George Benton Chester, Ind.; George Edward Courtney, Mich.; Harry Goodrich Dunaven, Mich.; Louis Phillips Hall, Mich.; Frank Douglass Harding, N. Y.; George Byron Hayes, A. B., N. Y.; Clarence Eugene Henderson, Mich.; William Carley Herbert, Mich.; George Arthur Holliday, Mich.; Horace Nathaniel Holmes, Cal.; Edy Randall Johnson, Ohio; Jacob William Jungman, Ohio; Oscar Calm Kerlin, Ohio; Reuben John Kirk, Ohio; Charles Shuter McIndoe, Wis.; Edward Cook Mills, Ohio; Frank E. Morey, Mich.; Charles Franklin Noyes, Mich.; Arthur Mowry Potter, Mich.; John Scott Rice, M.D., D.D.S., Ind.; Arthur Richardson, Canada; Sumner Oliver Sawyer, Ohio; Henry Herman Schuhmann, Ill.; DeWitt Spalsbury, Mich.; Carroll Wesley Staples, Vermont; Griffith Pritchard Terry, Italy; Frank Prescott Watson, Mass.; Joe Welch, Mich.; John H. Williams, Ohio.

Total in attendance 108, as follows: Freshmen, 33; Juniors, 41; Seniors, 34.

THE INTERNATIONAL DENTAL CONGRESS.

ARRANGEMENTS for the coming International Dental Congress are being rapidly perfected, through the joint labors of the "Committee of Organization," which was appointed on the 4th of December, 1888, by the Minister of Commerce, who is the Governor-General of the Universal Exposition, under the auspices of which the Congress will be held.

The Committee have just issued a circular addressed to the President of all properly organized Dental Societies, the world over, of which we print portions, as follows:

The object contemplated by the Odontological Society of Paris, in the organization of the International Dental Congress,

is to make known the progress of Odontological Science, contributing to its further development by the discussion of various questions pertaining to dental art.

Dental societies are cordially urged to further the objects of the Congress by sending delegates in person, or papers to be read before the Congress.

Names of delegates should be sent in as soon as possible, also the name of a Corresponding Secretary for the local society, to

M. M. F. P. Pourchet, 24 Rue de la Chaussée d'Antin, Paris, France, to whom all communications relative to the Congress should be addressed.

The Congress will open on Sunday, September 1, 1889, and last one week.

The opening and closing sessions will be held at the Exposition, at the Trocadero.

Scientific sessions will be held at the rooms of the two Odontological Societies, 57 Rue Rochechouart, and 3 Rue de l'Abbaye.

Clinics at the operating rooms of the Dental School of France and the Dental School of Paris.

The Congress will be divided into four sections:

1st. Anatomy and Physiology: Normal and Pathological.

2d. Operative Dentistry: Special Therapeutics and Materia Medica.

3d. Prosthetic and Orthopedic Dentistry.

4th. Dental Education and Instruction.

The subject to be discussed will be classified as:

1st. Those chosen by the Committee of Organization.

2d. Voluntary.

They will comprise first essay in French, English, German, Italian or Spanish; all conclusions being announced *in French*.

3d. The discussion.

4th. Practical demonstrations—operations in operative or prosthetic dentistry, and the exhibition of new instruments and appliances.

Those requiring space for illustrations, apparatus or other accessories, should signify this as early as possible.

Essays will be limited to fifteen minutes, which at the pleasure of the President may be extended to twenty. Any further extension of time is subject to the vote of those present.

In the discussion, each speaker will be allowed five minutes—to be extended to ten with the permission of the President.

No speaker can occupy the floor more than ten minutes in the discussion of any subject, without the permission of those present.

Those desiring to participate in the discussion of the subjects announced in the program, as the regular order of the day, will be called in order, by notifying the Secretary General beforehand, in writing.

Anything which shall be published, except by authority of the Congress, within less than three months after the adjournment Congress, will appear only by title in the volume of transactions.

While desiring communications on all subjects pertaining to the science or the art of dentistry, the Committee beg to direct the attention of the members of the Congress to the following topics to which will be given priority in the order of the day. It is specially desired that those who may have made special study of these questions, in original investigations, should make public their views on this occasion.

SECTION I.—*Anatomy and Physiology, Normal and Pathological.*

1st. The teeth in connection with the race question.

2d. The "rôle" of micro-organisms in dental and oral pathology.

3d. The influence of nutrition in the causation and the arrest of dental caries.

4th. Dental and oral terminology and classification.

SECTION II.—*Operative and Therapeutic Dentistry.*

1st. The treatment of teeth with diseased pulps and with dead pulps.

2d. The comparative value of gold and of the plasties in tooth-preservation, with an account of recent improvements in filling materials.

3d. Local anæsthesia.

SECTION III.—*Dental Prosthesis and Orthopedy.*

1st. Indications and procedure in crown and bridge-work.

2d. Irregularities of the teeth and dental arches, with an account of the newest methods of regulating.

3d. The choice of material for the construction of artificial dentures.

4th. Restoration of the face and of the maxillaries.

SECTION IV.—*Dental Education, Instruction and Hygiene.*

1st. Education in the art of dentistry; methods; length of courses.

2d. Dental and oral hygiene during the periods of dentition.

Everything is being done to make the meeting profitable to all, and the number of visiting dentists will doubtless be very large.

Books and Pamphlets.

DENTAL MEDICINE. A Manual of Dental Materia Medica and Therapeutics, by FERDINAND J. S. GORGAS, A.M., M.D., Professor of the Principles of Dental Science, Dental Surgery, etc., in the University of Maryland, Baltimore. Third edition, revised and enlarged. pp. 429. Cloth, price, \$3.50. Philadelphia: P. Blakiston, Son & Co., Publishers. 1889. Toledo: Brown, Eager & Hull.

We notice some valuable additions to the third edition of this important work. Additions in the general subject matter have been made to: Diagnosis of the Affections of the Mouth, General and Local Anæsthesia, the Action of Arsenious Acid as a Devitalizing Agent, etc. In the new matter will be found the Action of Antiseptic Agents, the Proper Use of Antiseptics in Dental Practice, the Value of Germicides and Disinfectants, the Digestibility of Foods, Incompatibility, etc. To the materia medica and therapeutics have been added those agents that have been brought into prominence since the last edition of this book was printed. In all something over one hundred pages of new matter has been added. The author has carefully revised the subject matter and made some improvements in its arrangement.

The book is so well known among dental practitioners that it is not necessary to give a detailed account of its contents. Suffice it to say that it stands alone as a dental materia medica and therapeutics, and those who do not possess a copy of the work should secure one.

BRIGHT'S DISEASE. A series of Post Graduate Lectures. By ROBERT SAUNDBY, M.D., Edinburgh. Fellow the Royal College of Physicians, London; Emeritus Senior President of the Royal Medical Society; Fellow of the Royal Medical Chirurgical Society, etc., etc. In one large octavo vol., nearly 300 pages. Illustrated. Price, \$2.75. E. B. Treat, Publisher, 5 Cooper Union, New York.

ITS CONTENTS: Pathological Section I. Comprises: Albuminuria—Pathology of Dropsy—of Polyuria—of Uremia—Cordio-Vascular, and Retinal Changes. II. Clinical Examinations and Tests of the Urin in Health and

Disease. III. Bright's Disease, its History—Classification—Etiology—Anatomy of the Kidney—Febrile Lithemic and Obstructive Nephritis—Complications of Chronic Cases—Treatment—Fifty Illustrations.

This Series of Post Graduate Lectures on "*Bright's Disease*" by a thoroughly competent hand will be welcomed by the medical profession. The author of this volume by talent, position, study, long experience and special attention to Renal diseases is amply qualified to present such a volume. The whole subject has been thoroughly investigated, the present state of contemporary knowledge on this disease is clearly stated, and additions and suggestions which have resulted from thirteen years Clinical and Pathological study of *Bright's Disease* under the most favorable environments have been made. Fifty illustrations from microscopical preparations of Urinary and Renal diseases are given and inserted in their appropriate places throughout the work. A complete alphabetical index closes this valuable addition to the Medical Classic Series.

OUR TEETH: THEIR CARE AND TREATMENT. A treatise prepared especially for family instruction. Published by the Illinois State Dental Society, 1889.

This pamphlet of 30 pages contains valuable reading matter for the masses. The greatest need of the dental profession at the present time is the thorough dissemination of this knowledge among the people, and works of this kind will do much toward advancing the cause.

Although in part a reprint of the pamphlet issued by the society in 1877, a number of changes and important additions have been made that add to its interest and value.

The work has been electrotyped, and orders for copies of the book may be sent to the undersigned.

The price is \$14.00 per thousand, \$1.40 per hundred. The cash should accompany orders, which should be sent without delay, as it is necessary to know the number that will be required before the printing is ordered.

The price is only sufficient to cover the cost, and therefore no discount can be made upon large orders.

If those ordering them desire to have a business card printed on the cover, 50 cents must be added to the amount of each order, whether large or small. Address GARRETT NEWKIRK, Secretary, Cor. Wabash Ave. and 16th St., Chicago, Ill.

THE STORY OF VERMONT. By JOHN L. HEATON. Being the fourth in the series of the Story of the States, edited by Elbridge S. Brooks. One volume, 8vo, fully illustrated. Boston: D. Lothrop Company. Price, \$1.50.

Of all the States of the American Union few have had a more varied or a more notable career than that little commonwealth that arose within the shadow of the Green Mountains and on the eastern shores of Lake Champlain. The State has the claim of having been the first, outside the original thirteen, admitted to the American Union after a forty years' struggle for its

rights without parallel in the history of the country. Upon its soil the greatest of modern reforms—the crusades against slavery and intemperance—practically had birth, and its soldiers had the proud preëminence of being the most reliable fighters in the leaderless war of 1812, and of turning the tide of battle on the hotly-contested field of Gettysburg.

And it is this history—replete with tales of war and victories of peace, of border struggle and of industrial accomplishment—that Mr. Heaton has told with so much of earnestness, of painstaking research and of deftly-lighted passages in his addition to the excellent series that D. Lothrop Company are bringing out as a valuable contribution to American history under the general title of the *Story of the States*.

Not for forty years has a history of the State been published, and Mr. Heaton has practically had a new field in which to labor. That he has labored conscientiously and well few readers of his entertaining story will deny.

His volume should be at once acceptable and absorbing to the people of Vermont; more than this it is a volume that should attract the attention of all lovers of every phase of our nation's story and every admirer of sturdy, persistent, devoted and patriotic endeavor.

Mr. Bridgman's illustrations are a fitting accompaniment to the text and his representations of homespun ways and folk no less than his depicting of striking and dramatic scenes will supplement the interest of this excellent and most acceptable addition to the best phases of American history.

TRANSACTIONS OF THE DENTAL SOCIETY OF THE STATE OF NEW YORK. Twentieth Annual Meeting. 1888.

These transactions are neatly printed and bound and cover 129 pages. This society has a good membership of first-class dentists, and the yearly transactions will form a valuable addition to dental libraries.

TRANSACTIONS OF THE NEW YORK ODONTOLOGICAL SOCIETY. 1888. Published by S. S. White Co. 1889.

This work compares favorably with issues of past years. These transactions are filled with valuable reading matter from some of our most prominent dentists and are always welcomed to our table.

CHANGE OF DRESS AND ADDRESS.—*The International Dental Journal* has outgrown its old clothes and now appears in a new dress. The pen and skull decorations have been removed from the cover and plain faced type used throughout. The J. B. Lippencott Company now do the printing.

[Our readers who desire any of the books reviewed in these columns, or any other works issued by the publishers, can order through us.]

Our Aftermath.

DR. H. H. HARRISON, formerly of Cadiz, O., is now located at 1139½ Main Street, Wheeling, W. Va.

IN Massachusetts they pay attention to the teeth. There are 1,000 registered dentists in the State.

DR. N. W. WILLIAMS of Nice, late of Geneva, informs us that, for the summer, he will be at No. 26 Place Vendome, Paris.

"DENTAL JOURNALISM.—Lost a born editor when Dr. W. C. Barrett was deposed."—DR. T. G. LEWIS in *The Dental Advertiser*.

PROF. J. Y. CRAWFORD, Dean of the Dental Department of the University of Tennessee, has severed his connection with that institution.

DR. E. H. ANGLE, Minneapolis, Minn., is now located at No. 13 Syndicate Block and is devoting his whole time to the specialty of Orthodontia.

AT the recent meeting of the American Dental Trade Association held in New York City, \$1,000 was subscribed for the relief of the dentists of Johnstown, Pa.

MR. CHAUNCEY S. BIGELOW, who has been in the employ of Ransom & Randolph for eleven years, has been admitted as a partner in their dental depot at Toledo, Ohio.

DR. J. R. CALLAHAN, Secretary of Ohio State Dental Society, is now located at No. 79 Garfield Place, Cincinnati. All communications on State Dental Society matters should be addressed as above.

THE GREAT STATE OF OHIO cannot afford to furnish tooth-brushes to the soldiers' orphans in its care at the Xenia Home. Several efforts have been made to remedy the matter, but were abandoned because of the objections made by the Board to the cost.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

WHY DO FILLINGS FAIL? *

BY DR. H. H. HARRISON, WHEELING, W. VA.

It is said by some speakers and writers on dental subjects that it is not profitable to speak of our failures in society meetings, but rather to tell of our successes. It is certainly very much more pleasant to speak of successful operations than to rehearse our failures; but when we all have failures is it not profitable to speak of them, and inquire the cause, and seek more light the better to prepare us to overcome them in the future?

There are very many causes that may be considered sufficient to prevent fillings from arresting the progress of caries in the teeth. But before mentioning them in detail, let me say that we as dentists have fallen into the grievous error of thinking the principles involved in this operation infallible, and have given out this impression to our patients until they consider a failure of a dentist to come up to their expectation in his operating, a sign of quackery, or at least a want of ability.

We all realize that a perfect operation under favorable cir-

* Read before the Ohio Valley Dental Society, at Steubenville, Ohio, July, 1889.

cumstances is as near permanent as any other principle will admit; but we know there is nothing permanent, and dental operations are no exception to the rule. Let us correct this error and stand on the same footing with other scientific and professional men. Let us not be humiliated and cast down when we have a failure, when, perhaps, forty-nine out of every fifty operations are successful.

The physician is called to a patient, with some disease, which he treats successfully, and the pathological condition disappears—the patient is well and he pays the bill—glad to do so. Within a brief period the patient has a second attack and the same physician is called at once. There is no lack of confidence no matter what the issue be. The cicatrix of the dentist remains a monument of his failure, but the physician's failure is generally buried beneath the clouds of the valley and soon passes out of mind; and no matter what mistakes he has made, law comes to his relief and his bill is among the first to be paid out of the estate. I only bring up these circumstances to show the injustice to dentists. I do not think physicians get any more honor or are better paid than they deserve, but I do think the conscientious, honorable and scientific dentist does not get what he deserves. Beg pardon for this digression, and let us now enumerate some of the causes for our failure in arresting caries. Shall mention but four causes—

Defective nutrition.

Imperfect cleansing of cavity of decay.

The use of improper material.

Defective manipulation of material.

I have no doubt in my own mind that the first mentioned cause is the original first cause of caries, and that same condition still being present, the tooth may give way no matter how perfectly the operation of filling may be done. Hence this is a reason why fillings fail to save such teeth. The only way to overcome this obstacle is to prescribe a nourishment that will be more nutritious to the organ, and fill with a phosphate cement, giving your patient to understand the nature of the case. These are cases where good judgment and acute perception are required. It has been suggested that in such cases the patient be required to use phosphate of lime in solution (lime water) with the expectation that it will be appropriated to the building up of earthy

qualities of the tooth. This is a matter of dispute now among scientists, whether any mineral will be assimilated by the animal economy that has not first passed through the vegetable life, to unite in proper proportions with other elements. However this may be, it certainly is better practice to use the plan nature has laid out for the supply and nourishment of organized beings.

The second cause mentioned, imperfect cleansing of the cavity of decay, is one too frequently met with, and also one of the easiest to correct. It generally obtains with dentists that are tired—from their birth—or those that are unscrupulous and careless. This neglect is one that should never occur, and yet unfortunately is the cause for most of the failures.

The third cause mentioned very largely depends upon the judgment of the operator. We regard gold as being the best material to stop the progress of decay, and yet there are circumstances where other materials would be better than gold. Tin is better than gold in locations where the color or lack of density is not objectionable. The cements are better than gold where the pulp is nearly exposed or in cases of excessive sensitiveness. Rubber is better for filling the root canals of teeth with dead pulps than any other material. Dr. Webb says any tooth that is worth filling is better filled with gold. In this I think he is in error as much as when he says, "No dentist can make as good a gold filling in any other way as with the electric engine plugger." No doubt the Doctor was honest, but he was an enthusiast in some things.

Amalgam, the much abused, has its place of usefulness, and when properly manipulated is a valuable material for filling teeth. Its being so readily prepared and inserted has caused a great deal of careless operating, and this has been its curse. Gold no more carefully used would not make so good a filling. The fact is that the operator should fully understand the characteristics of every material he handles as a therapeutic agent, and then his judgment would not wander when put to the test. But as I cannot give specific cases will leave this part of the subject for others who follow.

The last division of my subject, defective manipulation of material, is one of the most potent causes for failure. Whatever material may be used or whatever preparation of the many materials used, one feature of the operation must be the same. It

must be thoroughly adapted to the prepared cavity. We will take one case for each kind of filling material. We will assume now that the rubber-dam is in place, the cavity prepared and dry. We have made for a retainer, a point, slot, groove, undercut, or general form of cavity to hold the filling. We have selected a very small pointed plugger and soft sponge gold to commence the operation. We find the sponge gold or soft pellets go to the place designed by the use of this small pointed plugger with the force of a five ounce hand mallet back of it, and is thereby thoroughly condensed before another piece is put on. Each successive piece is used in the same way until the cavity is nearly full, then with a medium sized foot instrument and No. 60 gold, with the same mallet, the filling may be completed in such a manner that it will be thoroughly adapted, as fully condensed and susceptible of a very fine finish and elaborate polish. A tin filling may be perfectly made after the cavity is made dry, by using No. 5 tin cut in strips and folded into small cylinders, and being placed in the cavity and pressed to place by a hand instrument. As each cylinder is placed in the cavity it must be placed on the opposite side of its fellow allowing the last piece to close the centre.

The rule given for mixing cements is to make the mass the consistency of thick cream. My experience teaches me that cements mixed about the consistency of soft putty is easier manipulated and more durable. The cavity should be kept dry, and filling too, for some time after insertion.

Amalgam should be mixed with the mercury and all the surplus removed, leaving only enough to prevent crumbling. Then into a dry cavity place a small piece and with a bulb point instrument, force the filling all over the cavity pressing hard. Continue in same way until full, then take cotton and wipe off surplus mercury, and put in more filling, until when pressed, but little of the mercury comes to the surface. Finish with wet cotton.

Indeed, the secret of success in filling is to practice thoroughness in every part of the operation, and this done will avoid all the failures that can be avoided.

PRESIDENT'S ADDRESS.*

BY C. S. CASE, D.D.S., M.D., JACKSON, MICH.

IN bowing to the time honored custom of delivering the presiding officer's address before this Association, it is with pleasure and pride that I am able to point to the progress that has been made in the last year in the arts and sciences pertaining to dentistry.

From what has been accomplished recently in microscopy in revealing the hidden forces of nature, through all the imperceptible gradations of birth, development, life; and on the other hand the processes of retrograde metamorphosis, destruction, death; the dental profession preëminently has reason to congratulate herself upon the possession of so many skilled workers in this special field of study. The importance of the microscope in dentistry has never been felt so strongly as at present. The perfection of its machinery which enables a microscopist to confirm the truths of his patient research to a whole room full of people at once, is a wonderful step in advance.

Chemistry also has been sounded by our modern workers in its deepest waters.

The discovery and manufacture of many new medicaments has added important factors to our *materia medica*.

The recent classification of all our dental medicines according to their influence and action upon healthy and diseased fluids and tissues of the body, places our dental therapeutics upon a scientific basis never before attained.

And in like manner I might take up every branch of dentistry and find in it reasons for congratulating ourselves that we belong to such a progressive profession.

You have but to examine the dental periodicals, monographs and text books, issued since our last meeting of a year and three months ago, to become convinced of the large and important additions to our dental literature.

In mechanics and art also—in implements and materials, we have made great strides. And now, that that subtle force of nature—electricity—is fast becoming subservient to our com-

* Read before the Michigan State Dental Society, June, 1889.

mands, we can but see, in its various forms and methods, a power that is destined to revolutionize the possibilities of our resources.

Yet, as we advance as a profession, the field continues to broaden before us, and we hear the cry on every side for more knowledge of disease and its peculiarities, and something more complete and thorough to combat the fell destroyer.

Implements, materials, and methods of warfare are constantly changing like shifting sands of time. That which was the *ne plus ultra* yesterday, is bad form to-day. Yet hopefully, persistently, and more perfectly equipped, we press on to new fields to find the same old enemy in solid phalanx before us—clothed and accoutred by modern thought to be sure, yet, in reality, the same that stood before our daddies, and which they met—allowing them to tell the story—with about the same degree of success and failure.

So the question often arises:—Are we really making progress? Were the old methods of hand pressure, soft gold and saliva equal to our new fangled notions and present indispensables? Or are our present failures largely due to the constantly increasing tendency of disease which keeps pace with our increasing knowledge and ability to combat it, as lock breakers keep pace with lock makers?

These are questions which each one of us must decide for himself. "Knowledge comes but wisdom lingers and she bears a laden breast filled with sad experience."

I believe that we do progress;—that the old methods, material, and hands, could not begin to do the work which we are accomplishing to-day. And though we have wallowed through many a mire, and then caught *en masse* in the delusive quick sands of unscientific and non-sensical things, we are fast shedding the last vestiges of empyracy and charlatanism. And while the ghost of that fossil of by-gone days still lurks in our rear, a being of more perfect proportions is proudly stepping to the front, armed with a knowledge of the laws and methods of nature from life to death, the scientific action of medicaments, materials and ways best adapted for restoration, and with hands ready to mould and shape according to correct principles of mechanism and art.

One of the evidences of our advancement, however unimportant it may be to us practically, is the willingness and even

desire of the medical profession to extend to us the right hand of fellowship. And though this has awakened in us a variety of feelings and given rise to much controversy, still the fact must always remain that it was the act of a great fraternity bowing with respect and deference to the solid achievements we had attained as a distinct and separate body, and therefore one of which we should all be proud.

As I have said elsewhere "many seem proud and happy that we are at last officially recognized as something above mere tradesmen and mechanics, and allowed to shine even as a star of lesser magnitude in the horoscope of true professionalism; while others, seemingly with a more exalted opinion of unadulterated dentistry, and royally sanguine of continued progress under the old flag—prefer to believe that 'a formal acknowledgment of dentistry as a specialty of medicine,' is of no importance specifically or essential to our professional dignity, and should be considered only as a compliment conferred upon a class of individuals possessing distinct characteristics, methods, literature and colleges of learning, between whom and the medical profession there is no chord of sympathy or interest other than is maintained between people of separate classes whose duties in life are in some particulars similar and demand occasional intermingling."

Whatever be the final decision we can but hope that the dental profession will preserve her integrity and be ready to give a united and hearty endorsement to that which is calculated to accomplish the greatest good to the whole.

Our phenomenal career is no doubt largely if not wholly due to the fact that we pull together as one man, working for the common good toward a higher standard of excellence. This we are enabled to do:—1. Through the coöperating influence of our national, State and local societies, which reveals the result of our every day work, that others may be benefited thereby; brings about the enactment of laws for the protection of ourselves and society; establishes codes for our guidance and the maintenance of professional dignity; destroys sectional jealousy and engenders good feeling and fellowship. 2. Through our periodicals, which are taking front rank as works of literary and scientific achievement, representative of a great and active profession; and as we feel here and there the pulse of these monthly heart throbs, we find them teeming with experience, research, and the best

thoughts of toilers for the common good. 3. The interest and sympathy which we extend and ever maintain for our colleges of learning, constantly urging a higher standard of qualifications and a more thorough and complete course of didactic and practical training in every branch which pertains to dentistry, that men who come from them will not only be prepared to do dentistry, but qualified for an honorable place in society as gentlemen and scholars.

In these prime factors of our greatness and development we are par excellence compared to every other profession or fraternity. It is not strange, therefore, that many of our great men who have formed the nucleus of our comet-like progress should be unwilling for us to accept and hold a minor place as one of the elements of another fraternity when the future with all its possibilities so broadens before us as an independent profession.

Now, gentlemen of this Association, what have the Michigan dentists been doing for the common good of our fraternity?

This State contains many dentists of no ordinary ability—men who are perfectly capable of contributing largely each year to our current dental literature and toward making this Association compare favorably with other State societies. Yet the support which we give to these periodicals that are the very life of our progress, and to this society, is actually shameful compared to that which we might do if we were not so selfish and indifferent. It is so natural for a dentist after he has had years of active experience, and begins to get ripe with practical knowledge, to drift into a rut in which ease and comfort are the principal elements, and with a feeling that it is more blessed to receive than to give.

There is one thing, however, which we as Michigan dentists can point to with pride and pleasure:—The establishment of a dental college that has, through the influence of meritorious work, grown to rank second to none in the world. Around this we have centered our interests, our affections, and our aid—in fact the subject of our college, its needs and business pertaining thereto, have occupied so much of the time of this Association in the past that the question has sometimes been asked if this society was sustained principally for the benefit and purposes of the college? And yet if there are no papers or clinics before us what better thing can occupy our time?

As I understand it, this Association—like other State societies—is maintained for the elevation and advancement of dentistry, and for the education and benefit of its members. It therefore becomes the duty of every one who has the success of these yearly meetings at heart to do all that is possible to fill them to the brim with that which will prove a practical benefit to its members in their every day work. Then will its influence be felt throughout the State and prominent dentists from adjoining States be glad to partake of and add to its advantages.

Not many years ago I attended a meeting of this Association at which there was only one paper read and no clinics given, the time being occupied principally in discussing and correcting the code of ethics, reprimanding and expelling infringers. While these things are important to us as an Association it is not what the majority of us are here for, and therefore should occupy as little of our time as possible, and so far as is advisable put into the hands of committees, in order to be brought before this body in the most condensed form. The machinery of the society should not be clogged by long-winded interferences and every thing should be made subservient to questions pertaining to dentistry proper.

There are a number of recommendations which I would make relative to our constitution. I will therefore suggest that a committee of five be chosen to confer with me, and if thought advisable give notice of any change in contemplation to be brought before the next meeting.

At the last meeting of this Association it was decided to change the time of our next annual meeting to May, it being a far pleasanter time of the year in Michigan, and on this account it was hoped that we would obtain a fuller attendance. Later the Board of Directors decided to again change the time to the first week in June so as to not interfere with the Illinois State Dental Association—believing it to be important that dentists in adjoining States should have the opportunity of attending each others meetings. In my opinion Michigan dentists can hardly afford to ignore the fact that we are near the great city of Chicago which alone contains over two hundred and seventy-five dentists, many of whom have won national reputations for great and useful contributions to the science and art of dentistry, and who, each year, give substantial aid to our progress. For a num-

ber of years this Association has held its annual meetings in Detroit and Ann Arbor. It is hoped by breaking this regime and meeting at different places throughout the State our strength and numbers will be increased and a general interstate interest awakened in the advantages which these meetings afford.

We are therefore welcomed to the great and flourishing city of Grand Rapids with all the warmth and hospitality which its people and dentists can throw around us. Your Local Committee have spared no pains in seeing that we shall be well housed and fed, and all the advantages which the city affords for pleasure and profit freely opened to us. Your Executive Committee have succeeded in presenting a programme which they hope will prove interesting and instructive; and could I be sure that I shall discharge the duties of presiding officer of this Association with proper ability, impartiality, and despatch, or even acceptably, I should feel a far greater assurance of the success of this meeting; for I assure you it is with the greatest embarrassment that I am forced to attempt that which I am so unfitted for in every way, knowing that I shall greatly tax your generosity and forbearance, and often require your most kindly aid.

Before closing it becomes my sad duty to announce the death of our most honored brother and fellow-worker, Dr. C. B. Porter, who died at his home in Bay City, March 20th. I would suggest that a committee be chosen to draft proper resolutions and condolences expressive of the sentiment of this Association.

WHAT SHALL WE DO IN THE CASE? *

BY GILBERT E. CORBIN, M.D., D.D.S., ST. JOHNS, MICH.

ARTIFICIAL teeth *can* be so inserted as to defy detection. They usually *are* so inserted as to look like signs for crockery stores. Why? Large numbers of persons go "shopping" intent only on procuring their plates at least possible prices, so that manufacturers of such mechanical appliances compete only in *price*, and dwarf or ignore all artistic taste they may possess.

So numerous have these crockery signs become in the community that many patients have actually adopted them as their

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standard of comparison, and positively object to the slightest irregularity of arrangement, to any yellowness of tint, and to many other very close imitations of beautiful natural teeth. Viewed simply as a mechanical trade, this is the legitimate result of the high-pressure business methods of the times.

On the other hand, most people of taste, refinement, and culture, fully appreciate that artistic ability, in this or any other direction, must be acquired at the expense of years of toil, and cannot be purchased at the price of a cheap crockery sign.

Aside from *artistic taste*, correct dentistry demands a *professional* knowledge of health and disease, life and death, the laws governing vitality, physiology, pathology, and kindred sciences. But men possessing this knowledge, if conscientious, will not permit the occasion for many plates of teeth. Knowledge preserves teeth; ignorance destroys them. Imperfect fillings by poor dentists, and neglect by careless patients, soon destroy natural teeth and call for artificial ones. Timely work and perfect work, and proper care on the part of the patient, will preserve most teeth for a life time. We all imbibe knowledge through observation from our surroundings. We possess no knowledge whatever on any subject which we have never seen, heard, nor thought of. Patients and others whose knowledge of dentistry has been solely derived from observations of the dentistry of the past, have no just conception of the possibilities in the dentistry of the present. Any firm roots now are far too valuable to be lost, as comfort, usefulness, and durability can be secured by proper treatment and a restoration of their crowns.

By most physicians and by many dentists it was long thought that the extraction of any aching tooth was justifiable and desirable, if not imperatively necessary. With such a standard as that on the part of the profession it became an easy matter for incompetent and unscrupulous parties to persuade patients to pay both for the extraction of good teeth and the insertion of very poor substitutes. Indeed such practices have not been entirely discontinued yet. There is still a great and unjustifiable slaughter of human teeth. Painless extraction, and cheap substitutes, seem to be the prevailing arguments with far too many. Even the street vender of wholesale destruction in this direction is largely patronized.

The credulity that supplies the willing victims not unfre-

quently excites disgust and contempt; and yet the suffering that comes from ignorance generally appeals very successfully to the sympathy of the public. The great State of Michigan has been very generous in the endowment of charitable institutions. Besides this, yea beyond this, she has enacted wise laws for the protection of the health, the lives, and the limbs of her citizens. She has enacted a law for the regulation of the practice of dentistry, than which there is no more important branch of surgery. The law, though imperfect, has already wrought great benefit. It provides conditions for registration, and a penalty for the practice of dentistry without registration. Notwithstanding all this, street fakirs procure licenses from village boards to conduct the business of indiscriminate extraction of human teeth on the public streets, and on fair grounds.

If it be suggested, "prosecute under the law," I ask who among you will come forward and testify that that is practicing dentistry or anything akin to dentistry? As well might you define decapitation by the guillotine to be surgery? Indeed the line of demarcation between the practice of dentistry and the malpractice of dentistry is not as well defined as it should be. I would not take from the general surgeon the privilege of improvising his own splints when called to adjust the fragments of a broken bone. His ability and willingness to do so are to be placed to his credit, and in cases of emergency may be very greatly to the benefit of his patient.

I would not deny to the dental surgeon the privilege of constructing artificial substitutes when needed. I am not willing to concede that such a course is incompatible with his calling, or derogatory to his dignity. We cannot concede to the general surgeon the right to fracture bones that he may apply his improvised splints. No one will concede the right to extract valuable teeth for the express purpose of supplying poor substitutes; and yet that very thing is being extensively done all over the country. At any rate, teeth that are susceptible of being made comfortable and serviceable for a long period of years are being extracted in large numbers and their places supplied by cheap, clumsy substitutes.

Why is this so? To whom shall we charge the fault, the patient, or the operator? While a few patients are astonishingly persistent in the wrong direction, it is a fact that most patients

accept the advice of the operator unhesitatingly. Are we not then forced to the conclusion that a portion of the public, by far too large a portion of the public, are being erroneously educated in regard to the desirable and possible extent to which human teeth can be saved? From what source is this erroneous education derived? Who are the instructors? Are they physicians? Are they general surgeons? Are they dental surgeons? Are they dentists of any specialty? Are they gentlemen, intelligent and conscientious? By what name shall we know them? The question of registration does not identify them. The matter of diplomas does not sufficiently describe them. They are found on both sides of the line. Will the item of ability throw any light on the question? Are we not inevitably forced to the conclusion that if they could successfully save the natural teeth they would do it?

What then shall we do in the case? From whom and by what means can the public at large derive the much needed information in this matter? Can we accomplish more by any mode of united action than we are doing individually?

The laws of hereditary transmission are now well understood. The offspring is to a large extent stamped with the mental and physical peculiarities of the parents. Intellectual depravity and physical deformity are surely transmissible. The violent destruction of any set of organs, persistently repeated through a series of generations, just as certainly and necessarily results in an impaired and imperfect development of those organs, as does daylight follow darkness.

The prospective parent who voluntarily and yet unnecessarily parts with the teeth commits a crime toward his or her yet unborn offspring. Good and perfect natural teeth play so important a part in the animal economy, that not even one tooth can be lost without lasting detriment to the whole system. Every organ and every fibre in the body suffer as a consequence. The question of cause and effect in this field has been so thoroughly studied by the most eminent scholars, as to well nigh prove the truth of the opinion that on an average human life is shortened one year for each tooth lost. As members of an intelligent and benevolent profession, working not solely for a subsistence, but with a conscientious determination that the world shall be the better for our having lived in it, I repeat the question, Gentlemen, what shall we do in the case?

DISCUSSION.

DR. DORRANCE, who opened the discussion, said it was a broad subject and the question suggested itself, What can we do in the case? He thought we could do something by looking at ourselves and seeing that we do not fall into the ways and methods of the so-called crockery manufacturers.

DR. LONG thought there were more good teeth extracted by physicians than by dentists. People in country towns go to their physicians when they want teeth extracted instead of going to the dentist.

DR. RIX wished to call the attention of the members to the charlatans, with cow-boys and brass bands, who go about the country extracting teeth. One located at Dowagiac for three weeks, and in that time claimed to have extracted 7,000 teeth.

DR. H. A. SMITH, of Cincinnati, was called upon by the chair for remarks on this subject. He said the dental profession is young and becoming more enlightened every year. We expect too much all at once. We must educate our patients to the value of their teeth so they will appreciate and take proper care of them.

Dr. E. C. Moore's paper entitled "Something," consisted in describing and passing around for inspection a number of devices gotten up by himself. They included a small pin vice for holding a separating saw, a jeweler's saw holding a strip of emery cloth, a syringe made from a rubber bulb and German silver tip, a spatula made of German silver for mixing cements, a small enamel chisel, an instrument for keeping corundum points moist while using in the mouth made from a mucilage holder, a pear-shaped mass of lead for holding against the opposite side of a tooth while filling approximal cavities in the anterior teeth with gold, an oil stone mounted on a mandrel for sharpening burs, and an oil-can to contain water for use, in small quantities, in the laboratory.

THE SURVIVAL OF THE UNFIT IN HUMAN DENTITION.*

BY DR. J. C. PARKER, GRAND RAPIDS, MICH.

It is probably true that in every broad generalization there is an element of untruth, or at least, the truth as stated is liable

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to serious misconstruction, and in no case is this more signally manifested than in the phrase of Herbert Spencer, "The survival of the fittest."

Because in its broadest sense the fittest does survive, many have jumped to the conclusion that all that "survives" is the fittest. Fitness may be defined as right relations with environment, and when it becomes apparent that just in proportion as that which survives does not sustain the best conceivable relations with its environment, does not subserve the best possible use, or is faulty in material, form, or growth, just in that proportion the fittest has not survived.

It is doubtful if there is in the human organization any more striking example of the "survival of the unfit" than in human dentition. It seems to me that it goes without saying, that given the unlimited resources of nature, the dentist who could not devise a better apparatus to conserve and promote the growth, nourishment, comfort, and welfare of the human machine than that presented to him every day in the form and material of the human teeth, would be a bungler, indeed!

No matter along what line of development the teeth may have come, there can be no question that, so far as subserving the best interests of that organization that to-day stands as the type of the highest in the universe, they are an unmitigated failure; and the presence here to-day of those I see around me, many of them grown old and bald-headed in their endeavors to patch up nature's blunders, emphasizes more distinctly than any words of mine can the stern fact of this survival of the unfit.

Let us consider first the unfitness of material that enters into the human teeth; more especially the dentine, composed as it is of an easily separated basic acid, and combined with one of the most readily decomposable of all organic tissues, gelatine, the wonder is that it so long resists the chemical elements that are always present to carry on the work of destruction.

It is true that in the substance and construction of the best varieties of enamel we have one of the most enduring of organic tissues, but its presence in such limited quantities only makes the more apparent the faultiness of all the rest.

Wouldn't you, if you had been constructing a masticating machine, have put into it the best materials you had in the shop, and in the most perfect manner? Wouldn't you have made a tooth of solid enamel from cusp to fang? And can you conceive

of any state of mind—outside of lunacy—that would induce you, from a constructive point of view, to wrap up in an unyielding cell such an unmitigated bit of natural cussedness as the “dental pulp?” A modicum of the most sensitive tissue in the whole body, serving—so far as human knowledge goes—no useful or beneficent purpose, placed in a position where it is subject to all the accidents of use and decay and deprived of the powers of repair when wounded, that is granted to nearly all the other soft tissues of the body, and when dead becoming the ever-present night-mare of our profession.

Did any of you ever stop and think how well the world might wag along without us if it were not for this little bit of unsanctified and unregenerated flesh? With no better material or more perfect construction than we have now, if we could eliminate this potent survival of unfitness a thousand ills that plague us now would have no existence.

You may think if we had no warning of decay, made manifest by the pain induced by sensitive dentine, we would never heed it; but experience would be the same teacher then as now, and if we found that our health and comfort was enhanced by the care of, and filling decaying teeth, don't you think we would have it done just as readily then as now? Especially if it wouldn't hurt!

Let us also consider the growth and eruption of the teeth. Has any one ever discovered any intelligent use or excuse for the deciduous teeth? Why not deciduous fingers, ears, and noses as well? Who would ever construct a masticating machine in such a blundering way? A few small insignificant teeth causing oftentimes great distress, and even death in their formation and eruption through the gums, and when once in place subject to sudden and rapid decay with all its attendant evils.

And when at length absorption occurs and the permanent teeth take their place, we often find that nature has blundered again in not making the jaw large enough, and we have presented to us those frightful irregularities that are the agony of patient and friend, and the despair of the dentist.

The elaboration of this subject might be carried on through the whole range of our professional experiences, for is not all we attempt an effort on our part to render more fit that which, through a bias in development is found unfit for the use and comfort of the human machine.

ON SOME RELATIONS OF THE FIFTH CRANIAL NERVE.*

BY DAVID FERRIER, M.D., F.R.S.

THE fifth cranial nerve has been, since the time of Sir Charles Bell, regarded as homologous with a typical spinal nerve—the anterior root being formed by the portio minor or motor division, the posterior root being formed by the portio major, with its Gasserian ganglion homologous with those of the posterior roots of the spinal nerves. And indeed it was by the effects of section of these two roots respectively, that Sir Charles Bell first demonstrated the accuracy of his views regarding nerves of motion and nerves of sensation.

But we have recently learnt more particularly by the researches of Gaskell, that the assimilation of the fifth nerve to the type of a spinal nerve with its anterior and posterior root is erroneous when viewed from the standpoint of homology. And indeed the whole of the current conceptions which we have been taught concerning the constitution of the spinal nerves and their relations to the sympathetic system require to be considerably modified. We have been taught to regard the anterior roots as nerves of motion, and the posterior roots as nerves of sensation, and the sympathetic chain of nerves and ganglia as a system more or less independent of the cerebro-spinal nerves. But Gaskell has shown us that the spinal nerves consist of two distinct systems differing in their origin, their size, their mode of distribution, and their functional relationships. The one division forms the *somatic* system of nerves which supplies structures derived from the epiblast, and from that part of the mesoblast which forms the mesoblastic somites, or, in general, the muscles and structure of animal life. These somatic nerves consist of an efferent or anterior root derived from the anterior horn of the spinal cord, and distributed to the skeletal muscles; and a posterior, or ganglionated root, which is distributed to sensory organs. The other division forms the *splanchnic* system of nerves, which supplies structures derived from the hypoblast, or, in general, the muscles and structures

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of organic life; or in other words the muscles of the visceral skeleton and the walls of the blood vessels and hollow viscera. These last are distinguished from those of the muscles of animal life by the smallness of their calibre. The splanchnic system, like the somatic, is also composed of different fibres. The former, that is the afferent, are ganglionated like the corresponding roots of the somatic system. Of the efferent, some pass direct to the muscles of the visceral skeleton, and these include the muscles of the face, jaws, and others included by Sir Charles Bell in his respiratory system. The others (the visceral nerves proper) pass at some part of their course into ganglia before they reach their final destination. The ganglia of the efferent system of splanchnic nerves constitute what we have been accustomed to call the ganglia of the sympathetic system. These are variously situated, some near the origins of the nerves, and others at a varying distance nearer or further from the periphery.

These ganglia are essentially vagrant in their character, and thus differ from those of the posterior roots, which are always situated close to the emergence of these roots from the spinal cord.

The differentiation of the spinal nerves into somatic and splanchnic divisions, and the relation of the latter to vagrant peripheral ganglia, throws a new light on the functions of certain cranial nerves respecting which there has been hitherto considerable diversity of opinion. When we look at the cranial nerves proper we find that the third, fourth, portio minor of the fifth, sixth, and seventh nerves, which are now purely motor in function, were at one time complete segmental nerves, that is to say, they were composed both of an efferent and afferent root. But in process of evolution the efferent root, with its ganglion, has undergone degeneration, though as Gaskell has clearly shown, the remnants of the ganglion are still capable of being demonstrated at the point of emergence of these various nerves respectively. Hence the portio minor, or motor division of the fifth nerve, is not homologically the anterior root, of which the portio major with its Gasserian ganglion is the sensory, but is a fully formed segmental nerve, of which the sensory division has undergone complete degeneration. The sensory divisions of these various nerves, viz., third, fourth, fifth, six, seventh, have been replaced by the sensory branches of the fifth nerve. The motor

divisions of the facial or seventh are essentially splanchnic efferent nerves, for the striated muscles which they supply, namely those of mastication and expression, all belong to the visceral group of muscles. In the facial nerve there are large and small fibres, the larger fibres being the nerves of the facial muscles, while the fine fibres which come from the *nervus intermedius*, or nerve of Wrisberg, enter the geniculate ganglion, and from thence pass into the greater and lesser superficial petrosal and the chorda tympani. It would thus appear that the nerve of Wrisberg, and its branches *via* the geniculate ganglion, constitute a splanchnic nerve probably efferent in function.

I will return to this point when speaking of the supposed relations of the chorda tympani to the sense of taste. Meanwhile let us direct our attention to the nerves of the medulla oblongata. The hypoglossal, or twelfth cranial nerve, is the only somatic efferent nerve; all the others, viz., the glosso-pharyngeal, vagus, and spinal accessory, are essentially splanchnic nerves, afferent and efferent.

The glosso-pharyngeal and vagus innervate the alimentary canal and viscera, from the pharynx as far as the hind gut and its appendages.

The somatic afferent branches of the nerves of the medulla oblongata, with all their complicated visceral relations are contained in the sensory division of the fifth, which arises in close relation with the posterior horn as far down as the middle of the cervical region.

These morphological data seemed to me to have an important bearing *inter alia* upon the pathology of what are termed sympathetic or reflex neuralgias of the fifth nerve. Thus it is well known that visceral irritation, unless reaching a high pitch of intensity, is obscure and non-localisable, whereas it is apt to project itself and become expressed in some somatic region, the central origin of whose nerves is in close relation with those of the viscera in question.

This is a sympathetic or reflex neuralgia; and from the central relations of the fifth nerve to those of the viscera, we may explain the headaches, toothaches, and other neuralgias of the fifth which are known to arise in connection with various forms of visceral disturbance. What should direct the incident upon one branch of the fifth nerve rather than another, under such

conditions, is perhaps not quite clear, but I think we may assume that if there are any causes of irritation already existing in any region supplied by the fifth, such for instance as a carious tooth, exposure to cold, etc., these will cause a predisposition to the localization and expression of visceral irritation in this particular part. Thus an irritable tooth may at any time become the seat of intense pain under conditions of visceral derangement; and a similar explanation is applicable to headaches, and other forms of trigeminal pain apt to occur under like circumstances. The locality of trigeminal pain is by no means always an index of its local origin. For as stomachic derangement may be the cause of frontal headache while the stomach itself is free from pain, so a general neuralgia of the fifth may have its origin in some branch of the nerve itself, such as a dental branch which is not itself the seat of conscious sufferings. Instances of this must be familiar to you all; they are certainly in accordance with my own experience.

Among some of the relations of the trigeminal nerve on which I desire to make a few remarks this evening, I would first allude to the supposed relation of the fifth to the muscles of the palate. It has been assumed by some that motor fibres from the fifth supply certain muscles of the palate, viz., the levator palati and azygos uvulæ. It is, however, more generally believed that the motor nerves of the palate are not inherent in the fifth nerve, but are derived from the seventh or facial nerve through the greater and lesser superficial palatal nerves, by way of Meckel's, and the otic ganglion respectively. These muscles, it is said, are apt to become paralyzed by lesions of the facial at, or above, the geniculate ganglion; and in fact it has been laid down in important text-books as a canon of diagnosis that facial paralysis, accompanied by paralysis of the soft palate, indicates a lesion of the seventh nerve in the position above-mentioned. We have, however, good grounds for believing that these views are entirely without foundation, and that paralysis of the palate never occurs from an uncomplicated lesion of the fifth, or of the seventh nerve in any part of its course. I have related a case of complete paralysis of the fifth nerve (*Lancet*, January 7th, 1888) in which the palate on the paralysed side was altogether unaffected. The motor innervation of the palate by the facial nerve was many years ago questioned by Hughlings Jackson (London Hospital

Reports, Vol. I, page 336, 1864) on clinical grounds, and I have myself never seen any indication of paralysis of the palate in the numerous cases of facial paralysis which I have examined in this relation. The experiments of Vulpian (*Comptes Rendus*, CIII, 1886) upon dogs, as well as those of Beevor and Horsley on monkeys (*Proceedings of the Royal Society*, No. 278, 1888), have shown that no movements of the soft palate can be excited by stimulation of either the fifth or seventh nerves within the skull, whereas movements of the soft palate are readily excited by stimulation of the spinal accessory or accessorio-vagus. These experiments confirm similar results obtained by Volekman and Hein (*Muller's Archiv*, 1840, and *ibid.*, 1844), which seems to have been ignored by most clinical writers and observers. We may therefore take it as established beyond all doubt that the spinal accessory, and not the fifth or seventh, is the motor nerve of the palate. Paralysis of the palate is apt to be associated with paralysis of the vocal cord on the same side, owing to the community of innervation, and this condition is not unfrequently associated with paralysis of the fifth, as well as some others of the cranial nerves. In the following case, paralysis of the left side of the palate and the left vocal cord were associated with paralysis of the sensory and motor divisions of the fifth nerve, and, at a later date, by paralysis of the facial and sixth on the same side:—

David R., aged thirty-three, admitted under my care into King's College Hospital, March 29th, 1888. Previous history was unimportant. There was no clear evidence of specific disease.

In June, 1887, patient first noticed that hearing was becoming deficient in the left ear, and soon after he began to experience a buzzing sound in this ear. Then he began to have dull aching pain in the lower jaw on the left side, ceasing abruptly at the symphysis menti; the pain soon extended into the malar and occipital regions on the same side of the head. Thinking that this was due to a carious tooth, he had it extracted, but with no relief to the pain. Shortly after, he noticed that he had lost sensation over the left half of the face, and he then began to have pain in his left eyeball, which felt as if it were being compressed. In January, 1888, he had some swelling and tenderness on the left side of the neck below the mastoid process, probably glandular. About this time hoarseness of the voice came on,

which had been gradually increasing, together with the deafness.

Present condition:—Slight dropping of the left eyelid; left pupil smaller than the right; a marked depression on the left temporal fossa owing to atrophy of the temporal muscle, and a similar condition of the masseter and mylohyoid muscle on the same side. On opening the mouth the jaw deviated to the left side (owing to paralysis of the left external pterygoid). The muscles of mastication had entirely lost their faradic excitability. The tongue, when protruded, deviated slightly to the left side; the side of the tongue appeared somewhat puckered or scarred. There was considerable wasting of the left sterno-mastoid, and of the interior border of the trapezius as compared with the right; and it was observed, at a later date, that there was paralysis of the left side of the palate, and complete paralysis of the left vocal cord. Hearing was defective in the left ear, but an examination by Dr. Pritchard showed that the auditory nerve was unaffected, and that the deafness was due to subacute local inflammation of the tympanic wall in the region of the ossicles. There was almost total anæsthesia and analgesia in the region of distribution of the infra-orbital and mental branches of the fifth nerve, also in the anterior two-thirds of the tongue, and of the mucous membrane of the inside of the mouth as far back as the arch of the palate. Sensibility was normal in the conjunctivæ, and in the region of distribution of the superior division of the fifth. There was total abolition of taste on the anterior two-thirds of the tongue on the left side. His taste was impaired on the posterior third. Two months subsequently (June 1st) paralysis set in on the left side of the face, which in the course of a few days became very marked, implicating all the muscles supplied by the seventh. With this there also occurred paralysis of the left external rectus. The patient left the hospital at this time, and I have not been able to trace his subsequent progress.

The association of paralysis of the palate with paralysis of the fifth in this case might have been taken as a proof of the relation of the fifth nerve to the palate, but the affection of the left vocal cord, and of the left sterno-mastoid and trapezius muscles, at once indicated implication of the spinal accessory. This case shows, among other things, that paralysis of the fifth nerve completely abolishes tactile and gustatory sensibility on the anterior two-thirds of the tongue. Some cases have been recor-

ded in which taste does not appear to have been affected in connection with disease of the fifth nerve, but these must be without doubt set down, if correctly observed, as instances of only partial lesion; and, on the other hand, some cases have been reported in which, with lesions apparently confined to the fifth nerve, taste has been abolished not only in the anterior two-thirds, but also in the posterior third of the tongue. The exact explanation of these cases is somewhat doubtful, but the probability is that they are not uncomplicated cases of lesion of the fifth nerve as such.

In the case which I have already reported (*Lancet*, January 7th, 1888), and alluded to above, complete uncomplicated paralysis of the fifth nerve, taste was completely abolished in the anterior two-thirds of the tongue, but retained in the posterior third in the region of distribution of the glosso-pharyngeal, also in the following case which came under my care some time ago (February 1st, 1884) at the Hospital for Epileptic and Paralysed, Queen's Square, the same facts are demonstrated.

Joseph M., aged thirty-three, exhibited symptoms of complete paralysis of the left fifth nerve, both sensory and motor divisions. There was atrophy and loss of faradic contractility of the temporal and masseter muscles. There was entire loss of sensation all over the left side of the face, conjunctiva, mucous membrane of the mouth, and the anterior two-thirds of the tongue. The tip of the tongue was, however, sensitive on both sides, and also the posterior third of the tongue. There was loss of taste for sweet, bitter, &c., on the anterior two-thirds of the left side, with retention of taste on the posterior third. Galvanic taste was also abolished on the left anterior two-thirds, and retained at the back.

There can be no doubt that the glosso-pharyngeal is the nerve of taste for the posterior third or base of the tongue. The proof of this, however, depends more on anatomical and experimental evidence than upon clinical facts—isolated disease of the glosso-pharyngeal, however, is distributed to the circumvallate papillæ. These undergo atrophy when the glosso-pharyngeal nerves are divided, and animals still retain the sense of taste, as is very plainly evident from their gestures, after section of both fifth nerves.

An interesting case has recently been reported by Rendu in the *La France Medicale*, May 11th, 1888, bearing on this ques-

tion. The case was that of a man aged thirty-four, who on his admission to the hospital on June 25th, 1888, presented left facial paralysis which had existed some time, and complete deafness of the left ear, which had set in later. There was no affection of the sensibility of the face. The sense of taste was intact at the anterior part of the tongue, but impaired posteriorly. The tactile sensibility of the mouth and tongue was unimpaired except in the region of the pharynx. It is not necessary for my present object to mention the other details of the case; suffice it to say, after death, which occurred in October, a glioma was found implicating the nuclei of origin of the facial, auditory, and glosso-pharyngeal nerves. The case is, therefore, a clinical confirmation of the functions ascribed to the glosso-pharyngeal in respect to gustatory sensibility.

While, however, there is practical unanimity among physiologists as to the fifth nerve being subservient to the sense of taste in the anterior two-thirds of the tongue, there is still considerable uncertainty as to the course which these nerves take in their way to the brain. It is, however, commonly believed that the gustatory fibres do not run directly in the lingual branch of the fifth, but diverge into the chorda tympani, and thence pass through the geniculate ganglion and the greater or lesser superficial petrosal nerves, and so reach the second division and ultimately pass into the trunk of the fifth nerve.

It is said by Schiff that though taste is abolished in the anterior two-thirds of the tongue when the lingual is divided after junction with the chorda tympani, this result does not ensue when the lingual is divided *above* the point of junction. The experiments of Bernard, Lussana, Schiff, &c., would seem to show that the sense of taste is at least impaired, if not entirely abolished, when the chorda tympani alone has been divided. The occurrence of loss of taste in the anterior two-thirds of the tongue in connection with facial paralysis, assumed to be due to lesion of this nerve below, or at the geniculate ganglion, is regarded as substantiating this view, and furthermore it has been stated that irritation of the chorda tympani in disease of the ear produces a prickling or subjective gustatory sensation in the anterior two-thirds of the tongue.

It is in reference to some of these points that I wish to bring before you some recent observations of my own.

I have recently had two cases under my care which are dis-

tinctly opposed to Schiff's view that the nerves of taste for the anterior two-thirds of the tongue run in the second division of the fifth nerve. In the case already several times referred to, the inferior division entirely covered its functions, and with these the sense of taste in the anterior two-thirds of the tongue. The superior and middle divisions, however, remained, and continue till the present day, absolutely paralysed. Notwithstanding the complete block in these two divisions, however, the path of taste is completely free, showing that the gustatory fibres cannot leave the third division and reach the brain by the second or superior maxillary.

In the other case, David P., aged sixty, who had suffered for several years with severe epileptiform tic on the left side, Mr. Horsley performed Carnochan's operation, and divided the superior maxillary nerve outside the foramen rotundum, extirpating at the same time the greater portion of Meckel's ganglion. He subsequently divided the descending palatine nerve. Yet this patient, though he became anæsthetic in the region of distribution of the superior maxillary nerve, retained his sense of taste absolutely unimpaired on the left side on the tongue. Eight months afterwards the inferior dental nerve was divided owing to return of pain in this region. Ten months afterwards, owing to a return of the pain in the molar and orbital regions, Mr. Horsley operated again with a view to extirpate if possible the Gasserian ganglion. The foramen ovale was exposed from the zygomatic fossa, and the inferior maxillary nerve divided just outside, that is, just above the junction of the chorda tympani. It was not found possible to expose the Gasserian ganglion, but the remnant of the superior maxillary nerve which had been previously cut was further exposed and resected inside the cranial cavity. After this third operation there was complete abolition of tactile and gustatory sensibility in the anterior two-thirds of the tongue. This case may therefore be regarded as proving that the nerves of taste for the anterior two-thirds of the tongue run directly in the lingual nerve, and not in the chorda tympani. For the operation was so performed as to avoid section or obvious injury to the chorda tympani. At the present date (May 14th), *i. e.*, six months after the operation, the patient is entirely free of his neuralgia, but there is not the same absolute abolition of tactile or gustatory sensibility which occurred immediately after

the operation. This, however, is only an instance of that recurrent sensibility which is known to occur even when the sensory nerve of any particular district has been thoroughly excised. It cannot be explained on the supposition that the chorda tympani, partially damaged, had again resumed its functions, for along with the lingual the superior maxillary nerve was also extirpated, and there was a return not only of gustatory sensibility, but also of tactile sensibility in the regions formerly anæsthetic.

I have already alluded to the constitution of the chorda tympani according to Gaskell's researches. It is, as we saw, a continuation of the nerve of Wrisberg which is a rootlet distinct from the other roots of the facial, and is composed almost entirely of the smallest or visceral nerves. Gaskell states that there are a few fibres of larger dimensions mixed with these, the relations of which are uncertain; but it cannot be denied that the great bulk of the fibres of the nerve of Wrisberg, and the branches of the geniculate ganglion belong to the ganglionated efferent nerves of the splanchnic system.

It has been stated by Vulpian that the chorda tympani does not undergo degeneration after section of the seventh nerve within the skull; but this is easily explained by the fact that peripheral degeneration is stopped by the geniculate ganglion. The chorda tympani is the secretory nerve of the sub-maxillary and sub-lingual glands and is probably also the vaso-dilator nerve of the anterior two-thirds of the tongue. Considering the small size of the chorda tympani, it seems almost an anatomical impossibility that this nerve, which undoubtedly contains a majority at least of efferent fibres, should also be equivalent to act as the nerve of special sense of such a large region as the anterior two-thirds of the tongue. And it has always appeared to me very unlikely that the nerve of special sense of the anterior two-thirds of the tongue should take such a roundabout course before reaching the brain as is involved in Schiff's hypothesis. Lussano and others believe that the fibres of the chorda tympani run directly into the nerve of Wrisberg. That the nerves of taste do not run in this nerve is proved by the fact that destruction of the facial nerve within the skull does not abolish the sense of taste in the anterior two-thirds of the tongue. Among other cases in proof of this, I would allude to that of Rendu cited above. I do not attach much importance to the prickling or

obscure gustatory sensations said to have been caused by irritation of the chorda tympani in cases of disease of the middle ear. These may be purely reflex phenomena, or the result of vascular changes in the tongue.

The only facts therefore which remain in favor of the chorda tympani being the path of the gustatory fibres for the anterior two-thirds of the tongue are the frequent occurrence of loss of taste in this region in connection with peripheral facial paralysis. How are these to be explained? I have unfortunately in a very large number of cases of this affection not specially investigated the sense of taste, but recently I have attended to this point more carefully, with the result that in cases apparently similar in their etiology, I have found quite as many, if not more, cases in which taste was absolutely unaffected as the reverse, and in those in which there has been loss of taste I have never failed to obtain evidence also of some degree of implication of the fifth nerve. The association of pronounced affection of the fifth nerve together with the seventh is by no means uncommon; but occasionally the affection of the fifth is so partial, or slight, as readily to escape observation. And I am inclined to think that the loss of taste in the anterior two-thirds of the tongue in connection with facial paralysis, is not due to affection of the chorda tympani, but to joint implication of the inferior division of the fifth nerve.

AMERICAN DENTAL ASSOCIATION.

[Special Report of the Proceedings of the 29th Annual Session held at Saratoga, N. Y.,
August, 1889.]

THE opening session was held in the court chambers of the city hall, and was called to order at 11 A. M. by President C. R. Butler, of Cleveland, O. The President introduced Rev. R. D. Hunter, of Philadelphia, who opened the convention with prayer. After prayer the roll was called. Reading of the minutes of the previous meeting, by vote, was dispensed with.

The Executive Committee made its report, and submitted the programme for the approval of the Association, which was by vote adopted.

Reports of the Publication Committee and Committee on Credentials were also made and approved.

The following amendment to the constitution proposed last

year, and under the rules having laid over for one year, was taken up and after considerable discussion laid on the table indefinitely: "Any permanent member of this Association losing his membership in his local society from any cause, shall from that date cease to be a member of this Association."

The proposition to amend Section 5 of Article III also failed to receive the required support.

Drs. Martindale, of Minneapolis, Bödecker and Carr, of New York, sent their resignations as members of the Association.

The Treasurer's report showed a balance of nearly \$3,000.

After transacting the above business the President read his annual address.

Taking for his theme, the influence of the lives of the former presidents of the American Dental Association upon the members of the dental profession, he paid a glowing tribute to the work and lives of Drs. Allport, Atkinson, Watt, Allen, McQuillen, Taft, Morgan, Keely, Rehwinkel, McKellops, and others, giving many instances of the personal help and encouragement which he had received from them.

The address was cordially received and referred to the committee on publication.

Before the opening of the first session of the convention, there had been placed in each seat a circular calling attention to the merit and superiority of a certain copper amalgam. The circular contained what seemed to be a certificate of endorsement by six or eight very prominent members of the Association and some of them teachers in dental colleges. Dr. McKellops calling attention to the circular asked that these gentlemen be required to explain their connection with the matter, as such a proceeding was in direct violation of a resolution of the Association, adopted several years ago. The affair created considerable merriment as the alleged signers one after the other arose and denied having ever given the manufacturers any certificate or authority to use his name in any such manner.

The meeting then adjourned until 7.30 P. M.

FIRST DAY.—EVENING SESSION.

After reading minutes of the morning session,

SECTION IV.—HISTOLOGY AND MICROSCOPY

was called, and Dr. Frank Abbott, chairman, made a verbal

report stating that the section had only one paper to report, and that was a paper on

THE FORMATION OF DENTAL ENAMEL, BY DR. FRANK ABBOTT OF N. Y.

The object of Dr. Abbott's paper was to affirm the existence of a layer of small globular pearl-colored bodies on the surface of the enamel organ or ameloblasts which, instead of, as many suppose, secreting the inorganic material for the formation of the enamel, are organized cells which appropriate the material and become themselves built up as the enamel rods.

Dr. Abbott submitted drawings of preparations in his possession maintaining his position. These drawings were criticised by Dr. Sudduth, who was of the opinion that the drawings did not fairly represent the microscopic preparations, stating that one was likely to overdraw the things in which he was interested and fail to reproduce other very important structures.

Dr. W. H. Atkinson—I wish to express my unqualified approval of this paper and these drawings. I do not believe a photograph will as clearly illustrate conditions of growing tissues as a drawing, for the reason that in a photograph the lines are indistinct and much extraneous matter, which has become attached to the tissue in its preparation for mounting, is reproduced in the photograph, making it misleading if not valueless. I wish we could have more men who would engage in this work and tell us what they see not only with their eyes and microscopes, but what they see with their mental eyes as well.

This subject was further discussed by Dr. W. X. Sudduth on Wednesday evening. The Doctor illustrated the subject with the micro lantern, exhibiting about fifty slides, beginning with the formation of the cells in embryonal tissue, and following the development of the tooth germ through all the various stages of its growth. These slides are made directly from the microscopic sections and are not retouched. The Doctor claimed that they more accurately represented the conditions of growing tissues than the drawings of Dr. Heitzmann. Dr. Sudduth does not think there can be demonstrated a special globule or cell which is organized into enamel; thinks the enamel organ secretes the inorganic material and that it is deposited in the matrix of the tooth, or the organic portion.

SECOND DAY.—MORNING SESSION.

SECTION V.—MATERIA MEDICA AND THERAPEUTICS.

Dr. A. W. Harlan read a paper entitled

GERMICIDES AND DISINFECTANTS.

The author referred to the value of essential oils as disinfectants and antiseptics; and stated that their value depended on the vaporizable camphors which are deposited at a temperature of 94° F. when sealed in the cavity of a living or pulpless tooth. Has made experiments with oil of cassia and oil of cinnamon separately, and found that the oil of cassia is more potent in restraining and preventing the growth of microbes.

Dr. W. C. Barrett—We are too apt to multiply drugs. I am not able to comprehend any material difference between oil of cassia and oil of cinnamon; think we have other remedies that are equally good germicides.

Dr. W. H. Atkinson—I do not think we know when the microbes are destroyed. The oil of cassia is very much cheaper than the oil of cinnamon.

SECTION VI.—PHYSIOLOGY AND ETIOLOGY.

Dr. H. A. Smith, chairman, made a report continuing the subject of

IMPLANTATION,

from the report made last year.

Dr. Younger reported that during the year he had made twenty-six operations, all of which were successful except three. All of the teeth Dr. Younger implanted were old and dry teeth.

Dr. McFadden reported thirteen cases with no failures.

Dr. Hugenschmidt reported six cases, with two failures.

Dr. W. N. Morrison reported twelve cases, with two failures. Nine of the twelve cases were old teeth and three were freshly extracted. The roots were filled with gutta-percha and gold and sterilized with bichloride of mercury. The teeth were held in place by a vulcanized cap for thirty days. The two failures were of the freshly extracted teeth.

Dr. Louis Ottofy reported thirty cases; of these twenty-two were successful, four were doubtful and four were failures.

Dr. Smith recommended implantation as soon after extrac-

tion as the gum takes on a granulated condition, in the same socket from which the root has been extracted, and does not hesitate to excise the root of a tooth to implant it.

Dr. Watkins—Have implanted four teeth. They were old and dry. They have been implanted thirteen months, and appear to be successful.

Dr. W. P. Horton—I called on Dr. Younger at his office and he assured me of the success of implantation. He claimed that no more failures followed this operation than were likely to occur in as many operations of equal importance in other parts of the body.

Dr. J. S. Marshall—I do not think we ought to consider replacing an extracted root with a tooth, in the original socket, without allowing time for the absorption of the process to take place, as a case of implanting, but of transplanting.

Dr. C. N. Peirce—Every tooth which I have implanted that was denuded of periosteum has failed, and I have only been successful when I have used teeth with the dried periosteum remaining intact. I implanted one tooth, a superior second bicuspid, where there was considerable absorption of the alveolar process. In drilling out the socket my drill penetrated the antrum. The tooth was implanted, but in a few days the patient returned, saying that she was troubled with a constant hemorrhage from the nasal cavity. No special treatment was resorted to but the patient assured that it would be all right. In a few days the hemorrhage ceased and the case is a success.

Dr. G. L. Curtis—I consider it essential to success, that the root be scraped and polished clean of all organic structures. I have had no failures in several operations.

Dr. Smith, Denver—Dr. Younger tells me that he is very particular in selecting the teeth he uses for implanting. He will not implant a tooth if any portion of its periosteum is destroyed. But at the same time he does not hesitate to excise the root if it is too long. If he does, he is particular about filling the root and capping the end with gold. He will not use a tooth from a scorbutic or scrofulous person. Dr. Younger is not particular as to matching the color of the adjoining teeth, claiming that the natural pigment of an implanted tooth will be absorbed and replaced by the pigments contained in the fluids of the body in which the tooth is implanted. Dr. Younger's success is attribu-

table to the care he uses in the selection of his patients and the thorough and careful manner in which he does his work.

Dr. Barrett—From the discussion, we learn that one man thinks it very important that the periosteum of the tooth remain intact; another has had complete success in many cases and attributes it to the fact that he removed every particle of organic material from the root and completely sterilized the implanted tooth. From this we must conclude that no definite method of procedure has as yet been discovered that will insure success.

Dr. Peirce—I claim that we have learned something from this comparison of methods and results, and one is that a tooth can be as successfully implanted with its periosteum all removed as though it were intact.

Dr. M. L. Rhein—I do not think sufficient time has elapsed since this operation was first performed to permit any of these operations being pronounced successful.

Dr. L. Ottofy—There are no extracted teeth on which the pericementum is perfect. At first I was impressed with the idea that the roots of teeth to be implanted should not be mutilated or cut, but I have had as good success with those teeth that I have excised as any others. I do not believe that an implanted tooth will assume the color of the natural teeth of the jaw in which it is implanted. To obtain a desirable color or to prevent the chipping of the enamel, I sometimes implant a root on which I have set a Logan crown. I do not hesitate to cut a root as much as half if necessary. I think it is important to thoroughly sterilize the tooth to be implanted in a 1 to 2,000 solution of bichloride of mercury, and just before implanting to dip it in a 1 to 500 solution of the bichloride.

Dr. H. A. Smith—The statistics of Dr. Younger refer only to the cases performed in his own office and not to those performed at clinics.



(To be continued.)

Compilations.

"Gather up the Fragments."

REMOVABLE BRIDGE-WORK.

BY E. A. COUNCELL, L.D.S., ENG.

Miss T—— had lost the first and second upper bicuspids on the left side, and was anxious to have the lost teeth replaced, but was strongly averse to wearing a plate. On examining the mouth, I found the left upper canine had a large amalgam filling on the distal surface, and the molar an amalgam filling in the centre of the crown; the gum between these two teeth was healthy. At the first sitting I drilled out both these fillings, opening out the cavity in the molar to its anterior surface and the cervical edge, the pulp being unexposed in each. An impression of the upper and lower jaw was then taken in godiva and the patient dismissed. A gold bar, about sixteen British plate gauge, was next made, the ends of which fitted into the cavities, and the intervening part accurately to the gum. Across the centre of this bar a small slot was filed. A gold saddle was next fitted to the bar and to the bite; this was made in two parts. A piece of gold, about eighteen British plate gauge, was bent to fit the side (lingual) and top of the bar , and a second piece of gold, not so thick, about twenty-three British plate gauge, being the side to which the teeth must afterward be soldered, was fitted to the outside of the bar, and soldered to the first bent part . This now accurately fitted the bar. Through the top of the saddle, directly over the slot beforementioned, a hole was drilled, and a piece of gold wire, long enough to enter the slot, soldered to the saddle. This prevented any sliding of the saddle upon the bar. The teeth, two canines, were fitted to the gum, backed, invested and soldered; these had now to be soldered to the saddle. Bar and saddle were placed on the model, and the teeth secured to the latter with wax, lifted off, and the teeth and saddle invested and soldered. Two holes were drilled through the lingual side of the saddle and completely through the bar. These were

tapped and the orifices in the saddle countersunk. Two gold screws were cut, the heads fitting the countersink. A screw-driver, for use in the mouth, can readily be made from an excavator. At the second visit from the patient I fixed the rubber-dam, leaving it over the gum between the two teeth, to be operated upon. The canine was filled over floor, internal and external walls, and the molar over the floor, with gold. The bar, with the saddle screwed to it, was then fitted into its place, so that the teeth pressed firmly into the rubber covering the gum, and held in that position, whilst fossiline was thoroughly packed into the cavity of the molar to hold the bar. When quite set the saddle was unscrewed, and the gold filling in the canine finished. The fossiline was next drilled out, and the gold filling in the molar completed. The rubber was cut away and the saddle and teeth went perfectly into position, and were screwed up tightly. The great object of the guide pin and slot is that you are absolutely sure of having the screw-holes of the saddle opposite those of the bar throughout the operation. The lingual side of the saddle should be of sufficient thickness to allow of giving a somewhat natural contour to the plate, and the upper portion is, of course, articulated to the bite. It is, perhaps, too much in these days to claim anything as original, but I certainly think for removable work (which must necessarily commend itself, as in the case of a fractured tooth), this plan will be found, in suitable cases, to answer the expectation of both operator and patient.—*Jour. Brit. Dent. Asso.*

Editor's Specials.

"Write the Vision and make it plain."

THE DENTAL PERIOSTEUM.

WITHOUT resorting to microscopic examination to ascertain the facts in the case, we would probably infer that this structure is more densely fibrous and less vascular than ordinary periosteal tissue. It is called on for greater resistance. It is subjected to more frequent and greater violence. It is to be taken for granted that the Allwise has constructed it accordingly.

This texture is, as it were, spread out between two bony walls. The sockets may be crudely described as conical cavities, and the roots of the teeth as wedges accurately fitting them. This texture lines the sockets and covers the wedges, or roots. The texture must receive nourishment direct from the blood, or it dies. It, like other tissues, dies, at any rate, by molecular death, the dead molecules being dissolved and passed out that new living ones may take their place. This implies vital circulation, and that, too, in spite of several considerations; the texture is not very vascular, there is not much room for circulation, and as the flexor muscles are stronger than the extensors, when the mouth is at rest, there is pressure on the tissue equal to this difference in strength. It has not a high nervous endowment, and is not, therefore, highly irritable. We all recognize that a vital flow comes to a point of irritation. Being less irritable than most tissues, it receives less of this incidental aid than they. We might readily imagine ourselves surprised that it gets sufficient circulation to keep it alive. But let us consider some assistant circumstances:

We all understand the importance of muscular action as an aid to the circulation of the blood. For example, in the lower extremities the blood in the veins has to return toward the heart opposed by the force of gravitation. If the limbs are allowed to remain totally at rest, the circulation is to be found more or less defective. Hence we find congestion, effusions, varicose veins, etc. But by normal exercise of the muscles the veins are pressed upon and their contents are impelled forward. Forward, because the valves prevent a backward flow.

Now we understand that the dental periosteum has but a feeble and limited circulation. The normal pressure due to the greater force of the flexors over the extensors tends to prevent congestion of this tissue, or even undue determination of blood to it. Yet with this advantage the circulation is so feeble that the change of the circulating fluid is not always sufficiently prompt for the health of the part. The great auxiliary is found in active mastication. Biting hard substances presses the roots into the sockets, forcing the fluid from the periosteum. And as this pressure is not constant, the intervals are improved by a prompt refilling of the vessels of the tissue. And this refilling is not caused by a return of the fluid just pressed out, but by that

which is fresh and more highly vitalized. Chewing, or mastication, if a big word is better, is essential to the health and development of this tissue.

With the above in view it is easy to understand why a tooth that has lost its antagonism, gradually, yet almost surely, loses much of its vital connection with the socket. It is probable that the force known, or guessed at, as capillary attraction, has something to do with filling the vessels of the tissue under consideration, but it is probable it has much less to do with emptying them. Of course if left stagnant, or still, the circulating fluid loses vitality, and the tissue dependent on it is either starved or depraved. In either condition,—and both may exist simultaneously,—the tooth becomes, to a corresponding extent, a foreign substance, and is treated accordingly.

It has generally been spoken of as if only the upper teeth are liable to expulsion from loss of antagonism, and the weight of the tooth has been claimed as a leading element in the displacement. "Every little helps," is a homely and true proverb, but lower teeth are displaced from apparently the same causes.

This is written with the hope that the profession will be still more careful to preserve antagonisms wherever practicable. Some of the thoughts may aid our younger brethren; and we hope they will not demoralize those who are older. There is something yet to learn about the teeth, their attachments, antagonisms, etc. Let the researches go on. The opportunities are good, and those capable of making the desired investigations are greatly increased in numbers. There is much to encourage.

ANYTHING NEW UNDER THE SUN?

A POPULAR daily newspaper has the following:

"Dr. J. Taft, dean of the dental school at Ann Arbor, Mich., is the proud and happy possessor of a jaw taken from a 2,500-year-old tomb at Rome on which 'bridge-work' was done similar in character to that done by the dentists of the present day."

We can't give full particulars, but suppose it was found in the same cavern with the jaw of the maternal wolf that nursed the twin founders of the city, which had

The wool still tangled 'mong her teeth.

This piece of bridge-work was probably made for the great-grandmother of all the Cæsars, and we expect is stamped genuine by the words "patent applied for."

A SURPRISE.

WHEN an old man's relatives find out that he is just a year older than he was just twelve months ago, and consequently a little older than ever before, they get up a surprise for his benefit. They eat all the good victuals about his house, and drink his bottled grape-juice, then his blue-eyed granddaughter, fresh from boarding-school, and hence familiar with all the proprieties, orates with a well memorized address—(or "*distress*"—he is not sure which), and all this is to remind him that never before was he as old as to-day. She solemnly warns him that "*Tempus* continues to *fugit*"; and then he owns up that he has been surprised, and the meeting is dismissed with a benediction. And the good old man must try to feel surprised the rest of the day.

Well—we, that is, G. W. of the JOURNAL, have been surprised; and the surprise will be better understood after a brief explanation. Not very long ago, while we were still boarding in bed, we undertook to write a short item for our JOURNAL. We selected "Definite Thought" as our subject. With much physical and more mental difficulty, the article was produced. It was written for the OHIO JOURNAL, and we felt that it was not up to the standard, but fearing we would never do better, we directed it to be mailed to our publishers.

A few days ago we opened one of our exchanges, and under the head of "Editorial," we found our little article, mistakes and all, apparently adopted into the family of our exchange, and looking as natural as a fool. Our surprise was to find our little underling enjoying the post of honor in his new family relation, with head erect as if proud of the birthright privileges of the first-born.

We are writing this without access to the recent numbers of the OHIO JOURNAL, and we cannot say positively that our article appeared in the JOURNAL, but how did our co-laborer get it, otherwise? That is, how did our uninteresting item become an "*item of interest*"? (See page 337, July number, of *Items of Interest*.)

We are still surprised—not because thoughts have been taken without credit; for we are somewhat used to that. But that *three pages* of editorial matter, written by us for our JOURNAL, is the leading “editorial” in an exchange. And if it has not appeared in the JOURNAL, there is all the more occasion for surprise. But a friend says, what are you going to do about it? Nothing at all. If the appropriator has a satisfactory explanation, it would be an *item of interest* to us, but we will not ask for it. If he is satisfied, we can afford to be, yet still remain surprised.

UNRIPE.

MUCH fruit is eaten before it is ripe. The average boy will eat the unripe apple *now*, rather than wait for its ripening, with the probabilities that some one of his many comrades will eat it. He wants it for himself. Self is a very influential fellow. Much that we read and hear seems like a setting forth of unripe thoughts. And we wonder why they have not been kept back till the period of maturity. Perhaps the thinker was not aware of their *greenness*; or, possibly he was, but feared that if he waited, some rival would promulgate them and get the credit of their origination. Robert Burns was sound when he said:

“If self the wavering balance shake
It’s rarely right adjusted.”

To illustrate the character and quality of one class of immature thinking it may help to give an illustration: Long ago, at a large meeting of dentists, a paper was read in which the writer spoke of “inflamed dentine.” At once there was a storm of un-matured thoughts uttered. We were told that inflammation of that tissue was impossible for heat, redness and swelling are the constituents of inflammation. Then they gave us the diameters of the red corpuscles and the dentinal tubes, showing that as the red corpuscles could not pass into the *tubuli*, there could be no redness. And from the texture of the tissue, swelling was excluded, etc. Now, had they waited till their thoughts were ripe, they would have recognized the fact that heat, redness, and swelling are, in ordinary cases, prominent *symptoms* of inflammation merely, while the disease itself lies back of these entirely. But as a result of these zealously expressed objections, the profession

waded along without clearness of thought on this subject for at least a quarter of a century.

Till lately, not many in our profession seemed able to write or talk of the causes of dental caries, without mixing sadly the predisposing and exciting causes. And even yet, we have a great mass of unripe thought expressed in the consideration of the nature of dental caries. Those who speak of dental decay as unitary, have not waited for their thoughts to ripen. A boil and an ulcer or no more alike than are black and white decay. And the difference in color is not the leading difference in these decays. And the most common variety, caused, as we believe, by the immediate action of hydrochloric acid, differs from both as much as they differ from each other. Yet very much of present professional thought piles them together as if all one, instead of being a conglomerate mass. This class will not be ripened in a day. We'll have to wait.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

REMOVE THE WAX.—Scalding out wax is our most important work in rubber cases. Many failures, both in plates and from loose teeth on rubber plates, are attributable to oily wax and paraffine being left in the molds or on the pins and backs of teeth.—**DR. GENESE.**

TO DISGUISE THE TASTE OF PLASTER.—**DR. E. H. RAFFENSPERGER** writes: In taking impressions in plaster, the disagreeable taste of plaster may be avoided by the addition of about five drops of oil of wintergreen to the water; this imparts a delightful flavor to the otherwise nauseous mixture, and the patient is much better satisfied.

DENTAL NAPKINS.—**DR. E. H. RAFFENSPERGER** says: One word about dental napkins for use in the mouth. Take a tablecloth that is about worn out, cut the same into squares suitable

for use, don't have the edges hemmed or fringed; this will make a napkin far ahead of any you can buy already made, it has not the objectionable fringe to get caught in drill, and it is soft from long use and washing, so it can be folded in any position.

CARE IN VULCANIZING.—If rubber is allowed to be in contact with dry heated air, as in placing it in an oven, it has already begun to take the form of vulcanite, and the particles will not adhere readily, while the resistance of the hardened surface to pressure is frequently the cause of fractured models.

Again, in deep-bite sets, rubber laid on in pieces and only adhering at the edges will not be pressed into a solid form, as the air shut in will expand and often burst all the plaster casings, shrinkage taking place in ratio, and the workman will wonder what caused the results.

Therefore, while rubber is about the commonest material used in dentistry, nothing claims greater attention at our hands in working out the details to make it a success for dental plates. Like its prototype in office use, amalgam, we cannot exclude it, therefore it is our duty to give it the best treatment possible.—
DR. GENESE.

DIAGNOSIS of PYORRHOEA.—Having completed our visual examination, we then proceed to interrogate the patient exhaustively. We ask them their age; an account of any illness they may have had, bearing in mind what medication was used, and what may have been used during such illness; then we enter minutely into the family history of the patient, as to diseases of their parents, brothers or sisters; finally making as thorough a physical examination as possible, so as to determine the exact condition of the heart, lungs, kidneys and other vital organs, noting especially the presence of any sluggishness in the circulation, as evidenced by varicose veins. In case this examination warrants the belief of constitutional trouble, a thorough urinal examination should always be made. Kidney disorders so often present themselves as the main source of this disease, that this examination should be made not only with extreme care, but the urine should be taken at various periods: immediately upon rising, just before retiring, and after some protracted exercise. The physical and urinal examinations are better turned over to

some specialist whose opinion can be relied upon. Having discovered trouble existing in any of the organs, treatment of these difficulties must go hand in hand with the local treatment, and the results will be found to be always more or less satisfactory.—
DR. M. L. RHEIN in *Archives*.

PREPARING ROOTS FOR CROWNING.—DR. PATTERSON: The most important point and the most difficult point in crowning is to make the stump of the root. I have tried everything that has been put on the market for the trimming of those stumps, upon which you place the crowns, and I have found nothing in my experience that will do so well as the delicate, sickle-shaped scaler, which will reach the approximal sides as well as the labial and lingual sides, scaling off the enamel and trimming down the stump. Then, after that, I have found nothing so practical as the use of these little files which are designed for the trimming of approximal cervical surfaces of gold fillings; to follow your scaler. It is rough as it comes from the scaler; use these files for the dressing of the root afterwards; and that is my quickest and most satisfactory way of preparing those stumps. I have tried to use fissure-burs and burs of various kinds, small wheels, small disks, but as a general thing these stumps can be trimmed most rapidly, perfectly, and well in the way that I have spoken of; a few moments will suffice to do the trimming with that nicely tempered, nicely sharpened little scaler, turned almost at right angles.

I also use the Ottolengui cutter for cutting down the roots in many cases. I think it will do that more readily than the corundum, and sometimes you can use those where you can't use the corundum.—*W. Jour. report.*

A NEW POLISHER.—The very strongest paper should be used, but it must also be thin, so that when doubled it will be no thicker than that used for disks. Fine Irish linen writing paper for foreign correspondence I find makes the best cones. It is quite thin and not easily torn. Proceed as follows: Cut in pieces one and one-half inches square, and with a harness-maker's punch make a small hole exactly in the centre; then cut through the paper with scissors from one side to the centre, and gum one-half of one side of the paper on a line with the incision just made. Then, taking hold of the dry side next to the incision, bend it

under and completely around, so that the two sides will be parallel with each other, and the outside of the dry half be securely glued to the inside of the gummed half, making a perfect little cone with a round hole at the apex. With very little practice one becomes quite expert in making them, and it is surprising how many one can turn out in an hour.

When a sufficient number have been thus prepared, they are ready to receive a coat of shellac upon one side and polishing powder upon the other. When dry they may be cut down to convenient sizes with a pair of scissors. In using them it will be necessary to devise some way of holding them securely in the engine. I have constructed a carrier from an ordinary disk mandrel by removing the flat end, and soldering a hollow brass cone in its place; a brass cone is also soldered to the screw. I dare say that some other arrangement might be made to answer as well; for instance, little wooden shanks glued into each cone, and used in a port-polisher. I think a selection for this purpose might be found in the box of wood-polishing points.—G. H. WEAGANT, *Dom. Jour.*

DR. D. SCOTT THOMAS gives the following suggestions in the *Items*: *To wrap a probe*.—Wrapping fibres of cotton or floss silk on a fine smooth round nerve probe may be easily done if the end of the probe is first inserted, a time or two, into a piece of beeswax.

To protect a cavity from bleeding gums.—Where the gum persists in bleeding into a cavity, while filling without the rubber-dam, tie a coarse thread waxed around the tooth, forcing it well toward the root.

Method of venting.—If it is desirable to leave a vent hole for escape of gas from a "dead" tooth, insert the end of a thoroughly waxed linen thread into each root canal, and fill with amalgam around the thread, so that it will not be in contact with the tooth at any place except well up into the root, and when the filling is completed draw out the thread. In a cavity including the side of the tooth, draw the thread from as near the gum as possible to prevent food being forced into the opening.

A convenient engine bit-holder may be made of a square or oblong block of wood, about an inch and a quarter thick, and as long and wide as may suit the fancy (or supply of engine burs),

with rows of holes for burs about one-fourth of an inch apart. Place the burs, beginning with the smallest, at the end of a row, and grade them up to the largest of the shape, then follow with another shaped bur in the same order, placing all the sizes of the same shape in one group. It is better than a circular or cone-shaped one, because the different burs are more readily located when wanted, and may be placed in a drawer when not in use.

To preserve the packing in a vulcanizer, always put a small quantity of water in it as soon as the flask is removed after vulcanizing, close it tightly, and leave it closed till needed again.

To promote suction.—Sometimes it may be of advantage to cut the air-chamber pattern in two from front to rear, and place one piece on either side of the cast, leaving one-eighth of an inch or more space between the pieces.

How to get the bite.—The most successful plan I have found to induce patients to “bite” naturally is to request them to bite with their *back* teeth. When they have no back teeth, tell them you have placed some wax in the back part of their mouth, and ask them to bite on it.

To determine the amount of rubber for a plate.—The best way to determine the exact amount of rubber required for a plate is to remove the wax from the flask, warm it, and form it into a sheet of the same thickness as the sheet of rubber to be used. This may be done by having a smooth board of suitable size; near each side of which, on the upper surface, place a narrow strip of wood planed to the same thickness of the sheet of rubber, for the ends of the rolling pin (or glass bottle having parallel sides) to run on, and roll the lump of wax into a sheet. Use this sheet of wax as a pattern by which to cut the rubber. A small surplus of rubber should be added to insure the requisite amount.

Removal of wax from the flask.—In removing wax from very deep parts of the flask, an old cavity syringe may be used to force a stream of hot water to the bottom.

To prevent breaking of teeth.—To prevent the gum of artificial teeth being broken by the contraction of the rubber in cooling, make the rubber of equal thickness on each side of the edge of the block in danger.

Removal of tin foil.—After placing the teeth in the first part of the flask, coat the wax plate with thin shellac varnish, to prevent the tin foil adhering to the wax when opening the flask.

Societies.

"Wherewith one may edify another."

MEETINGS.

Pennsylvania State Dental Society meets second Tuesday of September, 1889, at Philadelphia.

Ohio State Dental Society meets annually. Next meeting at Cleveland, last Tuesday of October, 1889.

CENTRAL ILLINOIS DENTAL SOCIETY.

THE eighth annual meeting of the Central Illinois Dental Society will be held in Peoria, October 8th and 9th, 1889. Members are urged to come in time to attend a preliminary meeting on Monday night, October 7th, so that the regular sessions may be devoted entirely to professional subjects.

W. A. JOHNSTON, *Sec'y*,
Peoria, Ill.

HAYDEN DENTAL SOCIETY OF CHICAGO.

THE Hayden Dental Society was organized and incorporated under the laws of the State of Illinois, August 3d, 1889.

The object of the society is the professional and social improvement of its members.

Meetings will be held in Chicago on the third Monday of each month, except July and August.

The following officers were elected for the ensuing year: President, Louis Ottofy; Vice-President, A. W. Freeman; Secretary, A. J. Oakey. Board of Directors.—J. W. Rogers, J. L. Ubellar, H. P. Smith.

A. J. OAKEY, *Secretary*.

NORTH CAROLINA STATE DENTAL ASSOCIATION.

THE fifteenth annual meeting of the above association was held in Greensboro, June 25, 26 and 27. The attendance was the largest and the proceedings the most interesting in the history of the society. The following officers were elected for the ensuing year: Sid. P. Hilliard, President; Will Conrad, 1st Vice-President; Geo. W. Whilsette, 2nd Vice-President; J. W. Hunter, Treasurer.

H. C. HERRING, *Sec'y*,
Concord, N. C.

MISSOURI STATE DENTAL ASSOCIATION.

THE twenty-fifth annual meeting of this association was held at Pertle Springs, Warrensburg, July 9th to 12 inclusive, and the following officers were elected:

President, Dr. Henry Fisher, St. Louis; 1st Vice-President, Dr. J. D. Patterson, Kansas City; 2nd Vice-President, Dr. J. P. Gray, Sedalia; Rec. Secretary, Dr. John G. Harper, St. Louis; Cor. Secretary, Dr. Wm. Conrad, St. Louis; Treasurer, Dr. James A. Price, Weston.

Executive Committee.—Dr. J. F. McWilliams, Mexico; Dr. W. L. Reed, Mexico; Dr. W. H. Buckley, Liberty.

Board of Censors.—Dr. L. M. Nicholson, Fayette; Dr. J. W. Whipple, St. Louis; Dr. J. G. Hollingsworth, Platte City.

Committee on Ethics.—Dr. N. H. Gaines, Independence; Dr. I. D. Pierce, Kansas City; Dr. C. V. Huff, Knobnoster.

Publication Committee.—Dr. H. S. Lowry, Kansas City; Dr. W. E. Tucker, Butler; Dr. E. W. Stevens, Cameron.

Law.—Dr. James A. Price, Weston.

Supervisor of Clinics.—Dr. D. J. McMillen, Kansas City.

The next annual meeting will be held at Pertle Springs, Warrensburg, Mo., the first Tuesday after July 4th, 1890.

WM. CONRAD, *Cor. Sec'y*.

Books and Pamphlets.

PHYSICIANS LEISURE LIBRARY.

Some time since the well-known publisher Geo. P. Davis, of Detroit, Mich., commenced the publication of practical treatises on different medical subjects by eminent authors. These are published monthly, each series containing twelve volumes. The publisher now says: "This series has met with approval and appreciation of the medical profession, and we shall continue to issue in it books by eminent authors of this country and Europe, covering the best modern treatment of prevalent diseases." The extremely low price of 25 cents per copy, bound in durable paper binding, or 50 cents for cloth binding, brings them within reach of all. The price of complete series of twelve books in sets is \$2.50 in paper and \$5.00 in cloth, postage prepaid.

Series I contains the following volumes:

NEW MEDICATIONS, by Prof. Dujardin-Beaumitz, of Paris, France, translated by Dr. E. P. Hurd. This work of 314 pages contains valuable information on the subject of new medications pertaining directly to the diseases of individual organs as: Diseases of the stomach, cardiac, gastro-intestinal antiseptic intestinal, and general medication, pulmonary, pleural, antithermic medications, hypnotics, analgesics, local anæsthetics, etc., etc. The work is wholly practical and devoid of superfluous words.

THE MODERN TREATMENT OF EAR DISEASES, by Samuel Sexton, M. D. This embraces the classification and treatment of over 2,000 consecutive cases of ear diseases at Dr. Sexton's aural clinic, New York Eye and Ear Infirmary. The name of the author alone vouches for the value of this work. Among other causes he reports fifty cases of otalgia, due to reflex irritation from decayed teeth in the jaws. The removal of these teeth was followed by instantaneous relief. The book is well illustrated and contains descriptions of the various instruments used in aural diseases.

THE MODERN TREATMENT OF ECZEMA, by H. G. Piffard, A. M., M. D. In this volume the author has pointed out the chief varieties of this disease, sought to exhibit their etiology, indicated the principal remedies for its treatment and best manner of applying them.

THE DETERMINATION OF THE NECESSITY FOR WEARING GLASSES, by D. B. St. John Roosa, M. D., LL. D. The object of this work is to serve as a guide to the general practitioner in determining whether a given patient does or does not require glasses, either to aid the vision or to relieve a symptom that may not be directly referred to the eye.

GRANULAR LIDS AND CONTAGIOUS DISEASES OF THE EYE, by W. F. Mitten-dorf, M. D. The contents comprise methods of examination and means of diagnosis, anatomy of conjunctiva, symptoms, pathology, causes and treatment of conjunctivitis, treatment of acute purulent diseases of the conjunctiva, nature of granular lids, treatment, etc.

PRACTICAL BACTERIOLOGY, by THOS. E. Satterwaite, M. D. In this volume we find a treatise on the microscope and microscopical appliances for use in a bacteriological laboratory, methods of examination, culture methods, methods

of investigating special bacteria, etc. A very useful work for every professional man.

INHALERS, INHALATIONS AND INHALANTS, by Beverley Robinson, M. D. This is a treatise on inhalers, inhalations and inhalants and guide to their discriminating use in the treatment of common catarrhal diseases of the respiratory tract. The book is well written and the numerous illustrations add materially to its value.

Besides these series, I contains works on

THE USE OF ELECTRICITY IN THE TREATMENT OF FACIAL BLEMISHES, by G. H. Fox, M. D.

SPINAL IRRITATION, by W. A. Hammond.

ANTISEPTIC MIDWIFERY, by H. J. Garrigues, M. D.

THE PHYSIOLOGICAL, PATHOLOGICAL AND THERAPEUTIC EFFECTS OF COMPRESSED AIR, by A. H. Smith, M. D.

PREGNANCY, PARTURITION AND THE PUERPERAL STATE AND THEIR COMPLICATIONS, by P. F. Munde, M. D.

BOOKS RECEIVED.

A TREATISE ON SURGERY, ITS PRINCIPLES AND PRACTICE, by T. Holmes, M. A., Cantab. Fifth edition, edited by T. Pickering Pick. Price, cloth, \$6.00. Philadelphia: Lea Brothers & Co. 1889.

SERIES II AND III.—Physician's Leisure Library Edition. Detroit: Geo. P. Davis, publisher.

ALDEN'S MANIFOLD CYCLOPEDIA.—Volume XIII. takes the work along from Electricity to Exclaim. The information is condensed, but clear, accurate, and brought down to date. There is no slighting of any points, and the more important topics are treated with admirable fullness. Thus Electricity has 34 pages; Electric Light, 6 pages; Elizabeth (Queen), about 7 pages (with a fac-simile of her signature, which is interesting if not beautiful); Emerson, 4 pages; England, about 15 pages; Engraving, about 8 pages. A cyclopedia of some kind is need in every home and every school. This costs but little, while for general use it is far more convenient and practical than the large and extensive works.

Volume XIV. takes this important work from Exclude to Floyd. In general make-up it resembles the preceding numbers of the series. We also notice the same skill in the selection and treatment of topics and the same careful editing which has characterized the work from the beginning. The combination of a dictionary and a cyclopedia is an excellent idea and is being well carried out.

Volume XV. includes the titles from Fluctuate to Galvanism. We notice with pleasure the large number of practical topics which are treated, and the thoroughness and accuracy with which they have been handled.

Volume XVI., now ready extends from Galvanized Iron to Gog and Magog. The numerous illustrations, the excellent printing and the neat strong binding, are features which every one can appreciate; and not less will the majority of readers appreciate the wonderfully low price; 60 cents a volume for cloth binding, or 75 cents for half morocco; or, if ordered immediately, the publisher offers the sixteen volumes now ready for the reduced price of \$8.00 for cloth binding, or \$10.40 for half morocco. Sent prepaid, by

mail or express, or may be ordered through booksellers or agents. A sample volume may be ordered and returned if not satisfactory. JOHN B. ALDEN, Publisher, New York, Chicago and Atlanta.

Our Aftermath.

THREE YEARS' TERM REQUIRED.—At the recent meeting of the National Association of Dental Faculties it was voted to extend the dental college course of instruction to three years, of five months each, to take effect with the session of 1891-'92.

NO LICENSE REQUIRED.—Concord, N. H., July 26. In the cases of a physician and dentist indicted for practicing medicine and dentistry without a license, the Supreme Court to-day quashed the indictments and declared the law requiring license for the practice of medicine and dentistry unconstitutional.—*Daily Paper*.

LEAD POISONING.—DR. HERALD, of Newark, has, during the past six months, had fifty cases of lead poisoning in his practice, which he has traced to soda water contained in five-cent patent-stopper bottles. In some of the stoppers examined by him he found 42.4 per cent. of lead, and in others 83.6 per cent. The action of the carbonic acid in the water upon the lead in the stopper ultimately produces a bicarbonate of lead, which, when absorbed from the stomach, causes lead poisoning.—*Polyclinic*.

THE HUMAN HEART.—A curious calculation has been made by Dr. Richardson, giving the work of the heart in mileage. Presuming that the blood was thrown out of the heart at each pulsation in the proportion of 69 strokes per minute, and at the assumed force of 9 feet, the mileage of the blood through the body might be taken at 207 yards per minute, 7 miles per hour, 168 miles per day, 61,320 miles per year, or 5,150,880 miles in a lifetime in 84 years. The number of beats of the heart in the same long life would reach the grand total of 2,869,776,000.

ENCOURAGING SCIENCE.—The Vermont Microscopical Association has just announced that a prize of \$250, given by the Wells & Richardson Co., the well-known chemists, will be paid to the first discoverer of a new disease germ. The wonderful discovery by Prof. Koch of the cholera germ, as the cause of cholera, stimulated great research throughout the world and it is believed this liberal prize, offered by a house of such standing, will greatly assist in the detection of micro-organisms that are the direct cause of disease and death. All who are interested in the subject and the conditions of this prize, should write to C. Smith Boynton, M.D., Sec'y of the Association, Burlington, Vt.

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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

THE COMBINATION OF METALS FOR FILLING TEETH.*

BY W. N. WILSON, D.D.S., RICHMOND, IND.

NEARLY all agree that the combination of metals in certain cases is eminently successful in prolonging the usefulness of certain classes of teeth.

It is still an open question in the minds of some whether the advantages to be gained by this combination is therapeutical or merely the adaptability of certain metals to particular positions in the cavities.

Tin and gold have been used in combination for at least twenty-five years. They have been manipulated in two different ways.

First, as tin and gold forming a combination throughout the filling, or a part of the filling, finishing with pure gold.

Second, beginning the filling with tin and finishing with gold.

The advantages claimed are,

First, that it possesses the good qualities of gold as well as

* Transactions Indiana State Dental Association, Indianapolis, Ind., June, 1889.

tin; second, its ease of adaptation; third, its nonirritability; fourth, it is a poor thermal conductor; fifth, that its therapeutic effect makes it a good preserver of tooth substance. The one disadvantage is its color, while this is purely aesthetic it limits its use to such positions as shall not be discernable.

I have no doubt we shall agree with the above unless it is about the therapeutic qualities of the combination. There are several different views upon this part of the subject. By some it is claimed that dentine is hardened by the oxidation of the tin; by others, that the electric current developed by the two metals in one cavity will render a certain definite territory thoroughly aseptic and that micro organisms cannot live in the current. The gold is electro-negative and the tin electro-positive, there may be galvanic action but not to the amount claimed. The benefit derived is claimed by others to be simply the perfect adaptation of metals to the cavity.

It makes but little difference in which of the two ways the gold and tin are used. In using them homogeniously, I take a sheet of Ney's No. 6 soft gold foil, place a sheet of tin upon it and fold them and make them into cylinders to suit the case. A filling of this kind, when first finished will look like tin, but will be harder than tin and will become black. In the second case, the combination is made by beginning with pure tin at the cervical margin and finishing with gold; in this case the tin retains its color. It has been claimed if there is a very small proportion of tin used that it will be disintegrated and become a pasty mass, though rendering the space about the filling antiseptic. I think the combination first named is the best. It makes a much harder filling and does not wear away or cut out as the pure tin does. It is claimed this combination is easier of adaptation. Thermal changes do not affect the combination as much as gold. If there is any great benefit from the above combination over non-cohesive gold it must be in its diminished expense, its non-conductility and therapeutic effect.

The combination of amalgam with gold was first used to make what is now called a patch filling. It was an effort to caulk a sinking ship. It was found to answer the purpose admirably, in fact it seems the amalgam does not act only mechanically but that there is also a therapeutic effect. I have repeatedly seen cavities which had been filled with gold and failed and

refilled with the same material and still at some vulnerable point decay would begin again, but after removing this decay and patching the filling with amalgam the decay would be entirely arrested, and I have never had to patch a patch. The amalgam becomes very black but does not discolor the gold, the dentine becomes dense, and I might say recalcified. In large approximal cavities, extending so far below the gum as to be almost impossible to make a perfect gold filling and finish it properly, it is better to put in your patch and finish it before you put in your gold. Dr. Clapp, in the December *Cosmos* of 1888, describes a method of combining amalgam and gold, securing a firm union between the two and completing the filling at one sitting. After carefully preparing the cavity, he adjusts a matrix so as to hold the amalgam absolutely in its place until the filling is finished. Fill the cavity with amalgam as full as desired, and then he begins with Steuers' plastic gold, the first few pieces will become amalgamated, after the surface is covered with plastic gold so the amalgam does not affect it, he finishes with any gold he wishes.

Dr. Clapp claims that gold is more liable, in large compound cavities, to fail at the cervical wall, and amalgam at that portion of the filling going over on to the grinding surface, and in the combination of the two you get the good results of both. Also, that the thermal and galvanic shocks are much less than when made of one of the materials, and that there is union between the gold and amalgam, so that you can depend on the amalgam for anchorage. In a few cases I have used the amalgam and the gold as a combination filling, after preparing the cavity, I partially fill it with the amalgam, but do not finish the filling until a future sitting, when I drill retaining points into the amalgam, using it as if it was a part of the tooth.

The cases in which it has been used have been universally successful. Operations of this character require careful and skillful manipulation; too much care cannot be exercised. No filling material can make up for lack of thoroughness in all the minutia.

ANSWERS TO QUERIES.

BY DR. L. P. HASKELL, CHICAGO.

“What is your method of investing, backing and soldering?”

I use for investing either sand or marble dust, and plaster equal parts. I do not like asbestos as well, as it does not make as solid an investment.

I enclose in a sheet-iron ring, a little larger than the case, three-fourth inch wide, because less investing material is needed to heat and keep hot, and there is no danger of portions of the investment breaking away.

Heat the case sufficiently to remove the bulk of the wax, and dash boiling water upon it to clean thoroughly.

The backing should be thicker than the plate, about twenty-four guage. I prefer backing in the investment, especially gum teeth.

For the anterior teeth, do not cover the entire surface but round the top, and in plain teeth do not let the backings touch anywhere. In gum teeth allow the backings to meet as high as the gum shoulder. If there are spaces under the teeth pack in foil. The pins should not be riveted, for in the first place, there is not the slightest necessity for it; secondly, it cannot be done without removing from the investment, or backing before investing; third, there is danger of cracking the teeth, unless an expert; fourth, when riveted the solder holds only upon the surface.

On the other hand, if the heads of the pins are split with a sharp instrument, that holds the backing in place, and the solder flows into the hole around the pins and they are consequently fastened more firmly.

The solder should never be of a lower grade than 18k; if the plate is 20k, use same caret of solder. The nearer the melting point of the plate the better the solder works. Otherwise, the solder melts before the plate is hot enough, and “balls.” Use plenty of borax, putting it on and the solder also before heating. Heat slowly over the large gas burner, until as hot as that will make it, then place upon whatever is used for holding it conveniently (I use a semi-circular sheet-iron pan, open on the straight

edge, one inch deep, with handle diagonal to the surface). Apply the full blast to the outer surface for a little, and then upon the plate, so as to insure its being as hot as the backings, then throw it upon the backings and plate at once.

I prefer the mouth blow-pipe. It should be larger than the ordinary blow-pipes which are made for jewelers, who use low caret solders, and do not have to heat and keep hot a mass of plaster and sand. The White Co., at my request, are making a large blow-pipe. The mouthpiece is large so as to throw a volume of air into it, and also so it may rest against the lips, and not be placed inside, tiring the muscles. The other aperture should be one-eighth inch in diameter, so as to take in the full blaze of gas.

"What is the best method of tipping the anterior teeth, and of preventing the teeth from checking during the soldering process?"

The best method, perhaps, for "tipping" the anterior teeth is to do it with pure gold, soldering it when the teeth are soldered, either in a separate investment or when soldered to the plate.

I have no trouble with teeth cracking; do not remember the time when such an event happened, and I take no especial pains to prevent it. This is true either of plain or gum teeth, Justi's or White's. I heat the case over the gas for perhaps half an hour, then apply the blow-pipe; after soldering, lay upon the bench; if in haste to finish, after a few minutes lay upon a wet cloth, drawing it around the sides of the investment.

COMMON SENSE DENTISTRY.*

BY M. H. CHAPPELL, D.D.S., KNIGHTSTOWN, IND.

A DENTIST should possess a fair academic or collegiate education, with necessary attainments in the sciences and arts that may be required directly or collaterally, to practice dentistry intelligently.

The standard of a dentist, or the status of the profession, is attained, and maintained only, by each individual striving to do

* Transactions Indiana State Dental Association, Indianapolis, June, 1889.

not only a duty but to do his whole duty as opportunities may offer, consistent with the gifts endowed by the Creator, or the advantages he may have enjoyed. And he is responsible to the profession and the public for his efforts in relieving suffering humanity—repairing congenital, accidental and senile defects, restoring to comfort, and contributing to make life's pathway more smooth and life more enjoyable, by the exercise of his professional acumen.

There is no "Holy of Holies," or any "High Priest" within our professional tabernacle. No mysteries conceded to the few and denied to the many, but instead of this the books are open, and whosoever will, may seek and find success, by the assistance of those who have been pioneers and workers in our professional field.

We have organized societies, colleges, and encouraged dental literature, and invited all to seek information and develop skill, to that extent that will best contribute to the better service in saving and preserving teeth, and constructing prosthetic dentistry.

The foundation, or balance wheel, of this work is

COMMON SENSE.

All the co-called scientific lore is simply an understanding of nature's laws and acquired arts. But the key to this supposed mystery is in the ability to comprehend, and the application of handicraft for the desired end.

In our professional experience we often find *indolent neglect* on the part of patients, after extensive dental operations, and the finest skill, will fall into the meshes of failure.

Impaired health, dietetic habits, and senility, will contribute to the softening or decalcification of bony tissue, and *caries* easily destroy tooth structure.

Fully ninety per cent. of all the teeth we fill, are subject to the conditions here suggested, and how frequently the dentist will reflect over his failures.

Have we not been too egotistical in our skill, and too mechanical in our thought and effort, and not expecting the patient has an important part to perform when we have been engaged in operative dentistry, with little or no regard for the pathology of the parts or the dyscrasia of the patient?

This *indolent neglect* on the part of patients will induce a strumous diathesis, resulting in the deposit of epithelial or calcareous matter upon the teeth, or a filling up of the "Haversian system" of the cementum with salific substance, and terminate in scorbutic or calcic inflammation and suppuration of the gums, commonly known as "scurvy" and classified as "gingivitis," phagedenic pericementitis, pyorrhœa alveolaris, etc., will ensue.

We cannot expect success for any definite period of time with each and every case entrusted to our skill, but we can increase the number of successful cases by proper and earnest admonitions to our patients in the necessity of thorough cleanliness of the teeth and fillings, with rubbing or friction of the gums, and a kind invitation to visit us soon, that we may keep watch over the operations done. Therefore, by our interest in their welfare we gain their confidence and become successful practitioners.

How shall we guard against the possibilities of danger from this neglect or constitutional causes that excite or promote caries in these under our care?

1st. We should commence our operations by thoroughly cleansing the teeth of any and all deposits that may be upon them, with properly shaped instruments, and polish the enamel then rinse the mouth with a solution of Listerine, or some other flavored antiseptic mouth wash, which will leave a pleasant feeling that will be appreciated by the patient.

Remove from carious cavities such debris as possible, trim the marginal walls of enamel as may be necessary, polish with discs or strips of sand paper, then apply the dam and secure with ligatures. Shape the cavities for edge strength and retaining filling, which must be done to *conserve the pulp*, to prevent too close proximity, exposure or denuding it.

Use antiseptic dressing, dry well, then introduce small pieces of gutta-percha, after having been heated until *sticky*, and with properly shaped, long shank ball end burnishers well warmed, planish the material into the tubuli of the dentine, beginning at cervical wall, which is the most dangerous locality, thence the entire cavity, and if the filling is to be metal leave no surplus at enamel contact or exposed margin.

It may be asked, why not use oxy-phosphate or oxy-chloride lining?

I have repeatedly asserted that *gutta-percha* is the *safest*, and therefore the best, and that the *heat* is the surest *microbicide*, and that, as glacial phosphoric acid is used in the phosphate filling the molecules of phosphorous are *migratory*, and will destroy life of the fibrils and pulp (but in less degree than arsenic or chlorine), before calcific deposits are formed into the compact substance, known as the "zone of resistance."

2nd. If the pulp be dead, then the precaution mentioned is unnecessary, and another line of conditions are presented—treatment of pulpless teeth.

If the apical foramen be closed, "immediate canal filling" may be done, with some degree of security. Yet there may be a microscopic exudation, or free drainage, and if closed a train of unpleasant, turbulent, dentist condemning, painful experiences will follow, and you will wish you had not been quite so "*immediate*." But if the drainage is apparent, then treatment must be made and the filling delayed.

A few years ago I began using, as a cleanser of cavities and canals, peroxide of hydrogen and bichloride of mercury with the best of results, and in connection with this, or following as a treatment in many cases, I use bi-sulphide of carbon in solution and full strength, and in some cases with carbolic acid, to pack the canal with cotton saturated with this preparation and seal up for twenty-four to forty-eight hours. It is a disinfectant, microbicide and a "*healer*" in pulpless teeth when a discharge is apparent.

Some patients object to the odor; so they do to carbolic acid and iodoform, and the dentist may object to the mephitic gases that arise from the mouth and teeth, and when he applies these odorific medicaments he can meditate over that homeopathic maxim, "*similia similibus curantur*."

I also use bi-sulphide in dissolving rubber and gutta-percha, used in canal fillings, with the finest results by saturating cotton shreds and packing them in the canals.

3rd. In using amalgam or alloys, a thorough grinding in a mortar to mix, then continue triturating with bi-carbonate of soda and washing with water until the water pours off clear is *absolutely necessary*. We observe that the process of rolling iron while *hot*, and copper, silver and gold while *cold* improves the mallability, ductility, hardness, compactness and with less lia-

bility of change and more useful and durable. So it is with amalgams or alloys. The compression of the crystals forces them to assume a fibrous form, decreasing its liability of spheroidal "bulging" at one point and shrinkage in another.

Therefore thorough grinding, with sufficient mercury to make a plastic mass, then, as ready for filling, not too excessive squeezing of the mass to force out any excess of mercury, and with continuous planishing of the material to the walls of the cavity, and the cavity having been prepared as before mentioned, completing the filling in like manner until near a finish, and then with the mass *squeezed dry* as possible, planish on a finishing quantity, which should be allowed to rest twenty-four hours, then cut down, burnish and polish.

4th. A heavy gold foil, No. 30 "cohesive," can be planished, or enterdigitated by hand pressure soft and pliable and made into a solid contour filling; also, the so-called "soft foil" fillings are a semi-cohesive mass of gold, similar to the heavy gold so-called "cohesive" work. Either kind make first-class fillings.

But it is the imperfect extra annealing of gold that makes a harsh, hard, comparatively worthless "cohesive" filling, whether you use light or heavy gold.

5th. Several years ago I was sorely distressed to have a patient fifty years of age call with a gold crown loose from softening of the dentine (senile caries) in the canals and pits showing a dark line through the enamel.

I removed the crown, excavated the decalcified dentine to sound dentine; the pulp appeared to have receded by a protective calcific wall. I enclosed the tooth with dam, used the antiseptic treatment and burnished the gutta-percha with heat into all the surface, with no surplus. I then mixed the oxphosphate stiff, but sticky, and reset the crown. It is there yet and I have no desire to molest it. In setting I continued with pressure until the joint showed no cement. I have repeated the operation in other cases with the best of results.

This unfortunate crown, and time not sufficient to rebuild it, has led me to inlay various forms and adaptations with gold shell and porcelain, and is now in general use, even resetting large and small gold and amalgam fillings.

6th. Wherever you observe healthy gums and teeth in the

mouth of a person forty to sixty years of age you will see more or less the cusps of the teeth worn away, the muscles rigid and with little lateral swing to the jaw.

Hence, in arranging teeth for full sets for people of this age, in nine-tenths of the mouths so articulated, the cutting edge and grinding surface should be ground down, or rather giving them *age*, leaving the teeth square, or less rounding, with more of an occluding surface with superior cusps slightly extending, or the arc of the lower jaw narrower in front than the upper, while the posterior portion of the upper teeth are not so wide as the lower. Hence, the lines of the two plates cross on the bi-cuspid and first molars and extend on a straight line back from the point of contact of the lips.

Ten years ago I advocated the more extensive use of plain teeth and pink rubber for gums, and I still find they give the best results and satisfaction for cheap work, while platinum plates, plain teeth and continuous porcelain make the best and finest.

Anæsthetics and advertising. The present generation of patients have an idea that "extracting teeth without pain" is one of the *new improvements* in dentistry, and we are often informed that Dr. so and so extracts teeth without pain, and he has discovered something new and they travel miles to see the humbug, have a ten per cent. solution of cocaine with a trace of carbolic acid or menthol and myrrh bathed on the gums, and have their teeth out, and many of them valuable teeth that their dentist at home advised to have filled. Or in other cases, the traveling dentist uses nitrous oxide and pulls out teeth indiscriminately, while others will rely on a brass band and scare the life out of a timid patient.

Now, what are we going to do about it? We are not permitted to advertise that we possess all the known anæsthetics, and the people notice the advertisements, and in a business-like way they are attracted thereby and misled into untold regrets. Should not our *code of ethics* be so amended as to permit those who may so desire to publish that they use anæsthetics and perform painless operations? but not to claim superiority over a neighboring dentist, but a statement of facts.

7th. Our laws should be so amended that when a registered dentist so conducts himself in a disgraceful manner, by immoral, or unprofessional conduct, his privilege to practice dentistry should

be revoked, similar to the revoking of license to teachers in the public schools or in the practice of law.

These, with similar changes, should engage the attention of our committees on ethics and legislation.

WHY I FAILED.*

BY A. M. MARKLE, D.D.S., CROWN POINT, IND.

At our last annual meeting I was asked to write a paper. I am not a writer, but I will give you, briefly, a little experience.

The majority of dentists, when they talk, tell about their success, but I have had some failures. A few months ago a lady came to my office having trouble with the first superior bicuspid left side, had a large filling on distal surface, cusps very prominent, and in biting had split the tooth. I told her I thought it could be saved, and preparing a gold band cemented it on the tooth. The pulp was dead and had been for three years. The tooth did nicely for a time, then I thought it best to open the canals, and found them filled with a putrid mass of cotton, and only one root having received any attention. It had been treated and filled about three years before, but had always been a source of trouble. I thoroughly cleansed both root canals but trouble only partially ceased, and in a few days the pain was unbearable. It was periodontitis of the worst form, for which there seemed no remedy but extracting, and after a trial of all the means that I knew, I extracted the tooth. That did not stop the pain, but in a short time it grew decidedly worse, in fact more severe than ever. I then used a large bur in the alveoli, hoping to relieve the congestion of the surrounding parts, and after several efforts, and the use of medicine systemically for about two weeks the pain ceased. There seemed to be no reason for such severe and continued pain, except that the patient was overworked as a student, and the inflammation had such a start that it could not be controlled until she had a period of rest from her studies.

A few years ago I began to fill teeth with gold for a young lady. They decayed around the filling and came out, or were taken out, until I had replaced all that I had inserted, with two

* Transactions Indiana State Dental Association, Indianapolis, June, 1889.

exceptions; these cavities I had lined with zinc phosphate and they still remain in good condition.

The amalgam fillings save better than gold, and some that I have filled with gutta-percha seem to be in better condition than any of the others.

I tried to use care in my work, but I think this another evidence that there are teeth that gold will not save, but some of the plastics will. If time and space would allow that I might show you these two cases more fully they would be of interest, for I labored long and hard with both of them, but with all my labor I failed.

Failures are of more profit to us than our successes, for we do not soon forget them. The common every day experiences do not trouble us, but we all have to deal with cases that we do not know what to do with. I think it would be of as much benefit to each one of us if we would discuss the failures that we have had; but with some they are so common they could not discuss them. To such I would say, do less business and spend more time in reading on the points of failures. Attend the societies, and if you want to you can improve.

TO THE DENTISTS OF WESTERN INDIANA.

BY E. A. GILLETTE, D.D.S., TERRE HAUTE, IND.

It has been stated, times without number, "that no profession has developed as dentistry has in the past twenty-five years." But it is not my purpose to shout over this statement; the time to shout has not yet come; there is yet too much to be learned, too much advancement to be made before we shout. "Teeth and roots that a few years ago were extracted, are now saved for the benefit and comfort of the patient of the dental chairs." This, too, has been repeated until it is a nearly worn out phrase; yet even this is not the summit of our profession, for it would be much better if we could tell our patients how to prevent the decay of their teeth and those of their children, so they would not need wonders performed in the saving of teeth and roots.

There is no intention to discuss, at this time, whether dentistry is a specialty of medicine, or what relation they sustain to

each other; or try to show to what extent a dental student should or should not study medicine. But a dentist should be able to ascertain whether the mouth is in a healthy condition or not before filling the teeth; for, if the conditions which have caused the teeth to decay are left unchanged after the teeth are filled, they must necessarily continue to decay after the dentist has done his work; and in that case the dentist has not performed his whole duty towards the patient.

If the gums are soft and unhealthy with the mucous follicles enlarged and throwing out a large amount of viscid fluid to hang around the teeth, or with the general system needing repair, or an acid stomach, the dentist should be quick to see and remedy.

Many of our failures have been caused by a neglect to remove the cause. Perhaps some of our failures to treat pyorrhoea alveolaris, and have the results we had hoped for, have been because we did not treat the symptoms which indicated the cause.

We have a great many papers and articles on "the treatment of pulpless teeth," but I do not remember to have ever read one on "*how to prevent pulpless teeth.*" Of course I do not mean to convey the idea that the dentist is to blame for pulpless teeth, but how shall we educate the people till there shall be no more? Meanwhile, till this happy time shall come, we shall be perplexed over the treatment of aching teeth, contouring of gold fillings, filling pulpless roots, abscessed teeth, misfitting plates, gold crowns and bridge-work, and a multitude of things.

But a few years ago the dentist was a recluse, shutting himself up in his office, giving no benefit of his knowledge or skill that he had acquired, and asking for none. Everything performed in the office or laboratory was kept secret and jealously guarded. Any one desiring to become a dentist paid so much to the local dentist to be let into the secrets, and after feeling himself qualified, opened an office for himself. This has changed, the would-be dentist is graduated from a college, the dentists meet in open social meetings, telling their methods of doing work, and how they perform certain operations. There are no more secrets among, *at least* a part of the profession. And every one who is present in a meeting like this, is not only giving his light of experience, his secrets to others, but is gaining knowledge from the busy brains of others, and the skill others have attained to.

Surely the dentist of to-day ought to be better than the den-

tist of twenty-five years ago, with every other dentist working for his development. Then, gentlemen, it is no wonder that dentistry has progressed as it has under these conditions. It is certain that, a few years ago, such knowledge as we now have access to in a fraternal meeting like this, could not be had for love or money; and every dentist who will not come to these gatherings is trying to keep himself back where the profession was thirty and forty years ago. He is not willing to learn, but shuts his eyes to light like the owl, saying by his actions, I care not for the best interests or welfare of my patients, the old methods of dentistry are *good enough for them*.

The surgical records of the late war was a new departure from the older records of surgery, from the fact that they recorded not only those which were successful, but the unsuccessful—the failures as well. This astonished Europe, for it was something unheard of to record failures; but it has helped to make surgery what it is to-day in America. Let us then, in our failures, tell one another as well as tell of our triumphs, for it will help our profession as it helped the medical.

Through these meetings have been made the dental laws which are for the protection of the people; and not only this, but protection has been given the dentist from the traps and devices to extract the filthy lucre from his pockets. A short time ago a dentist of this State paid five hundred dollars for an electric machine, and the county right to use it. He afterwards gave away the right, and the machine could be bought anywhere for forty or fifty dollars. If he had been identified with an association, I think he would not have “paid so much for a whistle.”

One more remark and I am through. A short time ago an individual was here in this city trying to sell office rights for using his formula for extracting teeth without pain. He had written contracts, signed by reputable dentists, to keep the formula a secret, for which they paid as high as one hundred dollars. A dentist at a distance from here, writes that he was unfortunately “taken in” by this man, and that two of his patients were very sick after using it in extracting teeth.

The moral is plain: Let us keep close together, give freely one to another of our light, and have nothing to do with secrets.

THE APPLICATION OF THE ARTS AND SCIENCES TO THE PRACTICE OF DENTISTRY.*

BY DR. LYNDON W. COMSTOCK, INDIANAPOLIS, IND.

DENTISTRY did not attain the dignity of a science until medicine and surgery were included in its course of instruction; nor can it exist as a science now if these branches of knowledge be discarded. This fact is forcibly impressed upon dental students, and has grown to such overshadowing prominence in the estimation of the profession generally, that other elements of the subject have been ignored until some recognition of their importance has been enforced by sheer necessity.

Conceding the paramount value of the medical and surgical constituents of our science, exception must yet be taken to some prevalent extreme notions arising from this fact. I refer (1) to the impression that Dentistry is only a specialty of medical practice, and, consequently, of subordinate rank thereto; and (2) to an unsymmetrical course of instruction which makes the medical and surgical feature unduly dominate all others, thus dwarfing their due relative importance. The effect upon the student is to confine him to a groove, while the public is led to depreciate the Dental profession.

Rather let us, at the outset, impress it upon the student that our curriculum is of a catholic nature, and that Dentistry stands upon a foundation of its own, broad enough to appropriate to its own development and expansion the sciences of to-day and of the future, just as it has drawn upon medical science for material in the past. Dentistry in its entirety embraces the relevant parts of medicine and surgery, instead of being, as some consider it, a circumscribed specialty with a mechanical tail that wags perforce every time an M. D. deigns to open his mouth.

It is but natural for doctors of medicine to seek to imbue adoring pupils with a profound belief in the loftiness of the science of Medicine, and the impression made upon the receptive nature of the callow student by these awe-inspiring encomiums is exceeding persistent. Many come to believe that their medical

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works contain all the information they need. Later in life they find out that this error has hindered their professional development; that in pursuing so narrow a course, they have learned but half the lesson, and that mental training alone does not fit a man to cope with life's demands.

Besides, there are more systems of medicine than one. The "schools" are so far apart that even the possibility of a union is not admitted. Their intolerance is so pronounced that there is seldom any intercommunication, and the idea is prevalent on the part of each that but little good can come from the opposition. To which of these schools, then, shall the Dentist pin his faith? Whatever we may individually believe respecting the merits of the opposing system, as a profession we are neither "regulars," nor "homopaths," nor "eclectics," but as little or as much of each or all as we please.

The most ardent followers of Esculapius do not claim for medicine that it is, in all of its branches, an exact science; for doctors disagree, and many a mooted question will remain undecided for ages. On the other hand, the signs of the times indicate that the day is dawning when we may confidently make that claim for Dentistry.

The disagreements of doctors of medicine have no place within the sphere of Dentistry. Concede to them the greater knowledge of their own science, profit by their discussions, and cultivate the home field.

Between Dental and Medical science there is no conflict except in the minds of a few illiberal practitioners, and these should be obliged to recognize our equal standing, at least until we, like them, shall have become subdivided into discordant factions unable to agree as to our own status. This conflict is born of selfishness and fear of pecuniary loss.

I have no word of encouragement for the dentist who would encroach upon the practice of the physician. Similarly, I have no love for the doctor of medicine who goes out of his way to practice dentistry. His experience having taught him that the physician who has attended a family for years is thereby enabled to serve them better, he should be considerate and courteous enough to recognize that the same rule holds good in dental practice.

In localities where the relations that should exist between

the two professions have been intelligently discussed there is no conflict; but in localities where opinions have been shaped by bias, ignorance or selfishness, you will find physicians sneering at the idea of consulting with dentists, yet frankly admitting that their own treatment must be unavailing until the dental surgeon shall have removed the cause of the disorder.

It must be conceded, of course, that the physician is better qualified to teach medical science than the dentist, who, in qualifying himself for his profession, has been obliged to divide his time between the several elements of a complete dental education; but the physician teaches dental students just as he teaches medical students, the result being an undue exaltation of the importance of the medical element of the dental course of instruction.

Physicians officiating as instructors of dental students should teach them that dentistry, in its entirety, is a grand profession, composed of related parts of many arts and sciences, including medicine; and the instructor who does not know this AND TEACH IT, ought not to fill a chair in any dental college. The rigid and universal enforcement of this rule would work a radical cure of the tendency on the part of dental students to form the impression that a knowledge of medicine and surgery constitutes nearly the whole of their needed intellectual equipment for the practice of their profession.

So much of real value comes to us through the medical element of our science, that we take to it naturally and unreservedly, as we do to our religion—Jonah, whale and all—all at one gulp, questioning nothing. But there is a manifest need for such modification of existing conditions and notions as will relegate this medical monopoly of dental instruction to its proper sphere, and make room for additions to the common stock of our resources from other departments of knowledge.

We may judge by what has been done, of what is possible in the future for the advancement of the science of dentistry. Fame awaits the man who will complete this science by incorporating therein all that the other sciences can be made to contribute to the use of dental practice. The man with the requisite ability, genius and courage to accomplish this feat has not yet shown himself—probably never will—and future progress toward this ideal goal will, as in other avenues of human endeavor, be grad-

ual. Nevertheless we ought not to stand back and leave too much to the indefinite future, waiting for improvements to be forced upon us, as has been the case, for example, with electrical appliances. For years we have been hanging around the door of electricians, when we ought to have been inside, getting our share. Not the New York style of leading the way, but quite otherwise. Indiana has not yet adopted "electrocution."

We owe much to the enthusiast, for to his class we are indebted for exhaustive treatises on scientific subjects, the production of which may have required years of labor and investigation. Though often of no great advantage to any one man, to the world at large they are important contributions, which may also have a cumulative value if they give to one generation the work of many preceding ones. We owe him all the more because of the sacrifice he has made, of time, skill and brains, for the general good—rarely for pecuniary gain. His is not a bed of roses. He sows; a few reap the benefits; many sneer and criticise—seriously retarding the dissemination of knowledge; but we should be thankful that here, too, truth is mighty and will prevail.

The apex of the hill of science is crowned with the temple of fame, and the terraces leading up to it are crowded with toilers who are endeavoring to mount the steps built of the world's accumulated wisdom. The Alpenstock of ambition is useless here unless accompanied by the mental strength to "climb the giddy steep." There is plenty of room at the top. Books, libraries, colleges and societies yield their treasures to the intelligent, receptive man.

The dentist who does not read the current literature of his profession, stays away from lectures, and depends upon his preparatory education, supplemented by his experience, to maintain his professional standing, will in time find that he is not keeping up with the procession, but is perceptibly falling behind. He is in the same tureen with the young man who is puffed up with merely theoretical knowledge, and does not realize that under the most favorable conditions, it will require years of manual training to enable him to master the mechanical and operative work of his profession. The successful ones, avoiding the mistakes of both of the foregoing types, and burning with a desire to see, hear and learn everything, and tell all they know, are here, in front of me. Judge of them for yourselves, (your verdict will,

of course, be disinterested and impartial). From these we select our college professors, and set them to cultivating their natural inclination to tell all that they do and do not know—for the perfection of human knowledge has not yet come.

“What mortal knows
Whence comes the tint and odor of the rose?
What probing deep
Has ever solved the mystery of sleep?”

Yet—

Science brings light to the soul
And lightens the labors of man;
While ignorance is bliss to the fool,
Who, burdened, poor, weak and wan,
Sinks under his load.

The contemplation of a scientific subject is an agony to the lazy, ignorant man; but he persists in testing all things according to his boasted knowledge, as did Lucretius—

“Who dropped his plummet down the broad
Deep universe, and said ‘No God,’
Finding no bottom, he denied
Divinely, the Divine, and died.”

When the supply of knowledge is insufficient, and the means of investigation inadequate, the result of the test will necessarily be inaccurate.

Dentistry is surpassed by no other profession in respect to the number and variety of requisite qualifications of a high grade. So numerous, indeed, in any one individual. The dentist possessing highly developed mental powers, superior mechanical ability, and artistic talent adapted to his work will, other things being equal, succeed better than he who is deficient in any of these respects.

It is not hard to comprehend why comparatively few dentists rise above the average. Hereditary characteristics of an unfavorable nature; physical infirmities, impairing the senses; imperfect, or even untrained sight; weak perceptive faculties; a blunted sense of feeling, touch or sympathy; these are some of the manifold obstacles that may bar the aspirant's way. Must he then say “there is no hope for me, for I am imperfect?” No. If each will do his best to perfect his part of the work, all will be accomplished by the profession. The aspirant whose scientific attainments are deficient, knows what is needed to remove that obstacle to success. He who has little or no mechanical skill

ought not to practice dentistry, and he who does not know enough about art to recognize variations in form, color and proportion, should duly inform himself or leave the profession. There is no room at the top for men who reject without trial suggested improvements, or for those who accept as facts such statements as, "only a genius can do" this or that thing.

When a man is not fitly qualified to practice, he should know it, should say so, and not seek to excuse his own deficiencies by attributing special powers to the practitioner who deserves credit solely because he has industriously cultivated natural endowments.

As the progress of the profession is the sum of the progress of its individual members, individual capacity to utilize the arts and sciences must be considered. Special senses must be trained, for many men do not know the range of their capacities, act and talk as though they were proud of their inability to appreciate music, the drama, high art and literature, condemn the opera as "just too highfalutin," never could understand Shakespeare, or get interested in Dickens, and see no difference between the works of Turner, Hunt, Tadema, and those of Miss De Smythe and Johnny Perkins.

There are several fields open alike to investigation by the dentist and the physician. Electrical science possibly offers more inducements to us than to the medical profession, because we have use for it in mechanical appliances, which they have not. Chemistry, whose origin is not to be credited chiefly to the doctor of medicine, presents an inviting and promising field to the dental explorer.

Investigation in the domain of applied mechanics, which has already greatly enriched the resources of dental practice, has by no means exhausted the subject.

As for art's part in our science, no dental work can attain the ideal standard of excellence without heeding and applying its rules. Because art is becoming popularized in America as it naturally is in France; because the people here—the masses—are learning art, and learning to love it as they do there, they too will demand artistic work. The powers that be, in our schools, colleges, municipalities, States and the Nation are urging the importance of art knowledge. The dentist who was educated under the old regime must go back to his studies and weave into his

science art, that he may be fitted to produce work that will stand the inspection of a generation that has an æsthetic education.

Bearing in mind the familiar maxims, that "a stream cannot rise above its source," and that "a part cannot equal the whole," the idea of depending upon a part of the sciences of medicine and surgery to give to dentistry an equal standing with them is a manifest absurdity. Medicine and surgery have equal access with dentistry to scientific subjects, but have no occasion to apply the art idea.

It follows that art can be made the great lever for elevating dentistry to a level with the other professions.

Science, art and mechanics—these are the trinity of dentistry; three in one, yet each susceptible of separate recognition. Art is scientific, science by virtue of its beauties becomes artistic. Mechanics is shown in the artisan's productions to be both scientific and artistic. No missing link in the union here described. In fact, nature is one throughout her limitless realm. The distinctions, art, science, mechanics, are human subdivisions bearing distinguished designations to facilitate the expression and communication of our ideas. The mechanic is education and trained specially for his duties in a manner quite different from the artist: while the scientist's course of preparation differs from both so widely that there would seem to be no connection between their functions. The machanic deals with material facts, for which he requires physical training and manual dexterity; the scientists, with theories and with principles, calling for the exercise of the logical faculties: the artist, with the ideal, the æsthetic, the sentimental, demanding among other qualifications delicate skill and acute observation. The complete dentist would embody all of these qualities.

To promote the employment of art in dentistry it has been found necessary:

1st. To overcome the common belief that art could not be systematically and scientifically applied, and that the dentist must have a special gift of genius to be able to learn much of art or apply its principles.

2nd. To demonstrate the need of art knowledge and skill in dental practice, and teach methods.

As I have devoted some time to this object, and have heretofore had occasion to give public expression to my views and

opinions thereon, I will not now risk a repetition, except to reassert that there are now no serious obstacles in the way of applying art to dentistry in a more scientific manner and to a greater extent than has been considered possible, and that the time has come when the importance of art in dentistry must be recognized.

In our ranks there are many who fail to see the need of artistic work, and believe that a pair of compasses for measuring the face and mouth will enable the mechanician to achieve satisfactory results.

Ever since hieroglyphics were first carved on stone, or written with a reed upon papyrus scrolls, man has been developing an æsthetic taste with profit and pleasure to the human race. The growth of art and its application to all that man creates has not been rapid, because he had to be educated to love it enough to make the sacrifice of time and labor required to enable him to utilize it, just as the love of science comes only after the student has been educated to the point where scientific investigation ceases to be a task and a tax upon his energies.

Some nations notably excel in one or another of the branches of art. It is natural for the Italian to love music; it has been hereditary in the race for generations, and so all Italians sing. Greece was the birth place of the drama, and the Greeks had a passion for the stage. France is the land of artists; the French peasant knows decidedly more about art than the average American.

In many parts of Europe there is an eagerness to embrace the study of art, which has pervaded the government, commerce, and society—the government and commerce, because the welfare of both depend upon it; society, because it must. Industrial schools, schools of design and academies of fine arts are fostered by these governments. The United Kingdom of Great Britain alone furnished forty thousand art pupils in 1888, besides over one million pupils in the public schools were instructed in the art studies, drawing, painting, modeling and carving.

Our own government has been slow to take up the work, because of the opposition of the middle classes to the expenditure of public moneys for what they regard as superfluous education.

A report of the subject from the Commissioner of Education, prepared by I. Edward Clark, A. M., has been published by our government. Every dentist should have a copy of it. The work

can be obtained through your representatives in Congress. The issue of this volume by the government has been followed by national appropriation for the purpose of aiding and establishing industrial and art schools, under certain conditions, throughout the country. Surely, the promise for progress in art in the United States is better than ever before. The prospect is appreciably brighter. Dentistry must keep step in the march of progress. It can do so by cultivating a science which is despised only by the ignorant, avoided by the lazy, and feared by the weak.

The man who holds that applied art is of little or no value to dental practice, can easily be convinced to the contrary, provided of course that he is open to argument and demonstration. For instance: If he makes a gold crown for a bicuspid shaped like a cylinder he is not artistic; but if he has skill enough to make one like a natural tooth he has at least one art idea. Art work is profitable in this case, and this is only one of a thousand opportunities for the application of art where the dentist must have the "artist's eye" sufficiently to see the correct thing to do, and enough of the artist's skill to execute it. Mechanical measurements will not fully answer the purpose, although indispensable; for art does not take the place of mechanics, it only beautifies and enhances the value of everything, from the tack-hammer handle to the corinthian column.

When I say that dentistry has not in the artistic sense kept pace with the world's progress, I am prepared to prove it. Teeth were filled with gold in the time of the Pharaohs; the Etruscans made bridge-work upon seamless gold foundations; the Chinese have made false teeth for centuries, and made porcelain for hundreds of years before any other nation ever heard of it. In the museum of fine arts in Boston, there are to be seen the Greek figurines from Tanagra that were made more than two centuries ago, upon which is seen work that will rival anything modern in modeling, coloring and baking. The cloissonne of Japan is not equalled in any other country. The old mosaics mounted in Etruscan gold are priceless and unexcelled. Mexican filligree work of early times evinces a skill that our modern metal workers wonder at. Compared with these very old processes and evidences of artistic knowledge and skill, the metallic and ceramic work of the dentist of to-day is a mere bagatelle.

In truth we can go back and learn; but that is not necessary.

The manufactories of Sèvres are open to the public; their processes are not secret; yet no one has ever published them, nor do the hand books on cermaics contain this valuable information that the manager, M. Charles Lauth, has generously given to the French republic. The Rockwood Pottery of Cincinnati affords an opportunity near home for a dentist to learn of art and cermaics.

It is profitable for dentists all over the country to learn how to model, mould, carve and bake. Studios are accessible to the earnest student. Electricians will welcome investigators. Electropasty and electrometallurgy are waiting for the dental student to apply their processes to dental uses. Reppousse work has not been made useful to the dentist, although it offers great possibilities.

How small the dental plate and bridge-work appears in comparison with the grand and beautiful creations of Starr, Tiffany and Baily, Banks & Biddle, whose great compositions in which gold, jewels and enamels are wrought into all manner of artistic forms, have required the highest skill of the artists, designer and the artisan.

Jewelers, goldsmiths, silversmiths, diamond-setters, lapidaries, enamellers, die-sinkers, engravers, workers in bronze, celluloid and rubber, possess precious information which the dentist should procure and utilize. Celluloid and rubber jewelry come from the press ready for the market. Electro-metallurgy will some time be successfully used in dental metal plate work, although now it is imperfect. Dies for reducing the forms of natural teeth need not be carved, they can be made by an electro-plating process much cheaper and more perfectly.

A smattering of knowledge of any branch of work will not aid the dentist much. Failures come from learning what is often thought to be sufficient. Go to the pottery, visit the moulding, decorating and paint rooms; to the foundry, into the smithy, the machine shop and the moulding room; we see that we have to do with the labor of each employe in these establishments, and yet we try to do what has taken each one of these men years to learn. No wonder we so often fail.

Industrial schools were not in vogue in our days; applied mechanics were not taught then; art was not heard of in the common schools; yet we practice for a generation that has had

these advantages. Do we not need to step up? The non-scientific, too, must not be ignored. Do not despise any source of information; if information is valuable, take it.

The "cute" but not often "brainy" quack is sometimes a genius who has a good thing; possibly his whole stock in trade is an ingenious method, a new device, a tool or a remedy. Do not despise him—at least until you get hold of his treasure.

Let there be narrow limits to dental learning; strive to apply everything of value to the profession, and when you have succeeded you may exclaim, with the Count of Monte Christo, "The world is mine."

Yes, I know, all this you have heard before. "There is nothing new under the sun."

AMERICAN DENTAL ASSOCIATION.

[Special Report of the Proceedings of the 29th Annual Session held at Saratoga, N. Y.,
August, 1889.]

(Continued from page 440.)

Dr. Eugene S. Talbot read a paper on

CLASSIFICATION OF IRREGULARITIES OF THE TEETH.

As a result of a careful examination of over 2,000 cases of irregular teeth, he has adopted a system of classifying the various forms of irregularity into V-shaped and saddle-shaped arches, and these are further modified into semi-V-shape, semi-saddle-shape, or half V and half saddle shape. These results, he claims, are produced because of the fixed character of the first molar, which he calls the base of the arch, and the cuspids are the key-stones. The cuspids, erupting after the other teeth, and because of their long roots, will, in taking their places in the arch, either crowd the bicuspids inside of the arch, producing the saddle-shaped variety; or crowd the incisors forward, producing the pointed or V-shaped variety. Dr. Talbot has prepared a set of models illustrating all these varieties of irregularities, which will be placed in the National Museum at Washington.

DISCUSSION.

Dr. W. C. Barrett—I am very glad to learn that this subject is being studied with the idea of determining the causes which

produce these irregularities, and that a systematic classification is being made. This will render the adaptation of appliances for correction a more simple matter.

Dr. Smith, of Denver—I hope Dr. Talbot will continue this work until we shall have more definite knowledge as to the causes which produce these irregularities, then we will be able to employ the necessary means for their prevention.

Dr. Curtis called attention to the wonderful regularity of the teeth in the lower jaw in the cases cited by Dr. Talbot.

Dr. Louis Ottofy stated that the Illinois State Dental Society had undertaken to make an examination of all the prehistoric crania in this country, for the purpose of ascertaining the extent to which they were affected by caries, abrasion, irregularity, etc. Several states, Kentucky, Georgia and California, has contributed money to assist in the work. He read a communication from the Illinois society to the American Dental Association requesting that a committee be appointed from the association and the work of examination and tabulating the statistics be placed in charge of this committee.

Dr. Barrett called attention to the fact that several years ago he had made just such an examination of over 2,000 skulls, and the result was published in the *Independent Practitioner*. He was in sympathy with this movement and hoped the association would take the matter in charge, as there was much to be learned from studying these prehistoric races.

A motion was passed appropriating \$500 for the use of a committee of five, to be appointed by the president of the association, to undertake this work in connection with a committee from the Illinois State Society.

SECOND DAY.—AFTERNOON SESSION.

Dr. Allport offered the following resolution, which was unanimously adopted :

“WHEREAS, The National Association of Dental Faculties has adopted a resolution declaring that, beginning with the session of 1891-92, all colleges which are members of the National Association of Dental Faculties shall require three courses of study of not less than five months each, taken in separate years, for graduation; therefore, be it

Resolved, That no delegate shall be received by the Ameri-

can Dental Association from any college which has not subscribed to this requirement."

After discussing the propriety of sending delegates to the International Dental Congress, to be held in Paris this year, it was decided to appoint no delegates.

SECTION VII.—ANATOMY, PATHOLOGY AND SURGERY.

Dr. T. W. Brophy read a paper on

SURGICAL LESIONS OF THE TERMINAL BRANCHES OF THE FIFTH PAIR OF NERVES.

The paper did not attempt a consideration of the lesions of the portions of the nerve distributed to the strictly dental organs, pulp and pericementum, but referred to the portion which is distributed to the tissues of the face, antrum, tongue and gums. He related a case where by wearing a lower denture which covered the orifice of the mental foramen—which, in extensive absorption, sometimes takes its place on top of the lower jaw—and caused severe neuralgia of the inferior dental nerve and afterward involved the inferior maxillary nerve. First operated by cutting through the inferior maxilla to the inferior dental nerve and removing a section of it; this failing to relieve the neuralgia the inferior dental nerve was cut and removed entirely from the canal at the inferior dental foramen. The patient still complained of pain in the side of the tongue, showing that the inferior maxillary nerve was involved through the lingual. Exsection is only indicated when the application of remedial agents have failed to give relief. Local applications, injections and nerve stretching should be employed before resorting to surgical operations.

DISCUSSION.

Dr. M. L. Rhein—I have used the chloride of methyl in the treatment of all forms of facial neuralgia with very good success. The rapid evaporation of the chloride of methyl produces a lower temperature, which produces a paralysis of the nervi nervorum.

Dr. Marshall—I have practiced evulsion, or tearing out the affected nerve as far back in the tissues towards the nerve origin as possible, with good success. Have cured a case of facial neuralgia by opening the infra orbital canal within the floor of the orbit, and taking hold of the nerve with a pair of forceps and

winding the nerve upon the forceps until it tears loose from the main trunk back in the orbit, and then removing it.

The secretary read a paper written by Dr. M. G. Jenison, of Minneapolis, entitled,

ORAL SURGERY AND WHO SHOULD PRACTICE IT.

The author called attention to the careless and often bungling treatment of diseased conditions of the oral cavity by physicians, and urged that it was within the province of the dentist to treat almost every lesion about the mouth, and urged upon the profession better preparation for and more frequent practicing of oral surgery and treatment of diseased conditions about the mouth.

SECTION I.—PROSTHETIC DENTISTRY, CHEMISTRY AND METALLURGY.

No papers were reported under this section.

Prof. Winder, of Baltimore, presented a piece of removable bridge-work, made by Dr. Spencer, of Virginia. The bridge was made to replace the second bicuspid and first molar in the inferior arch on the right side. The first bicuspid and second molar were fitted with collars, on the top of which was soldered a flat cap with a transverse dove-tail groove; caps were then swedged for the bicuspid and molar and to the under side was soldered transversely, or from the labial to the lingual side, a solid dove-tail or tongue to fit accurately into the corresponding groove in the cap on the collars. The porcelain teeth are then backed and soldered to the caps. The collars are cemented in place on the natural teeth and the bridge is inserted by sliding the tongues into the grooves from the labial side. The grooves are broader at the labial than at the lingual side, and so are the tongues, so that when the bridge is in place the outer cusps of the upper teeth hold it firmly in place.

Dr. G. L. Curtis, of Syracuse, presented a removable bridge designed to replace the same teeth as the above, and somewhat similar in construction. In this bridge a gold crown is made for the molar and one for the bicuspid; to the posterior side of the bicuspid and the anterior side of the molar crowns are soldered projections, or arms, the free ends projecting into the space to be bridged and furnished with dove-tail heads. Thin platinum is then burnished around these arms and their heads to form a matrix, which is soldered to the backings of the porcelain teeth

of the bridge. The crowns are set in place with cement and the bridge is adjusted by pressing it from above downwards over the projecting arms, or dowels, the heads fitting accurately into the slots made by the platinum matrices.

Both of these bridges were nicely made, and are easily made and very practicable.

SECTION II.—DENTAL EDUCATION, LITERATURE AND NOMENCLATURE.

Dr. W. H. Atkinson, chairman of the section, read a paper entitled

SOME THOUGHTS ON DENTAL EDUCATION.

The paper deplored the necessity for the maintenance of the so-called post graduate schools. Argued for a more systematic presentation of all branches of dental science and art in the regular dental colleges. Thought the tendency was to secure larger classes, and that more thought was given to this than to improving the quality of the teaching, all of which was calculated to lower the standard of dental education. Hoped the time would soon come when more time was devoted to the course of college instruction, and personal hobbies would be thrown aside and that a broad, liberal and comprehensive course of study would be demanded and attainable. For practitioners he urged the establishment of dental unions, with a room fitted for holding clinics, where a day could be spent together at least once a month by the practitioners of the neighborhood. These unions could be made of incalculable benefit to the members, and would be the means of preparing work for presentation at the larger societies and associations.

Dr. Louis Jack read a paper entitled

THE DESIRABILITY OF INDEPENDENT DENTAL JOURNALISM.

The paper advocated the idea of publishing the dental journals independent of dealers in dental supplies, claiming that a free and honest expression of one's convictions was only possible where the journal was not connected with a trade association or dependent on it for existence.

DISCUSSION.

Dr. Barrett—Dentistry aspires to a higher plane than the trades, and I believe that our literature ought not be embarrassed

by placing it on a level with the unfair and often unscrupulous competitions incident to trade life. Have had experience in independent journalism, and while it was not financially profitable, the journal with which I was connected always paid its bills from the receipts of its patrons. But independent journalism means more than financial solvency or ability to pay its debts. A journal to be independent needs the support of the minds and pens of the profession as well as the subscription fees. Its editor needs to feel that he represents the best thought and highest attainment and has the support of the best men in the profession.

While I would not for one moment say a word, or entertain a suspicion, against the integrity of the house that for years has printed the transactions of this association and have nothing to say in the way of criticism of the manner in which the work has been done; yet I wish the transactions of this meeting could be printed by the association.

Dr. Crouse—When I remember the difficulties we used to have to overcome, in order that our transactions might be printed by the association, especially the difficulty of securing the funds to pay for it, I am very glad to have even a dental dealer step in and relieve us of the trouble and expense, especially as the work is better done than it ever was before. We have a fair business understanding with our publisher, and I don't see where there is anything that is humiliating in this purely a business arrangement.

Dr. Ottofy—Two-thirds of the practicing dentists of Illinois are ineligible to membership in this association, because they are not graduates. The graduates from the post graduate schools have organized an association with the same aim as this one, and it is hoped that much good work will be done among those who can not work here.

SECTION III.—OPERATIVE DENTISTRY.

Dr. N. S. Hoff, secretary of the section, made the report, reviewing the work of the past year and noting the departments in which there had been any special activity. The portion of the report that brought out the most discussion, was the presentation of the results of some experiments performed by Dr. Joseph Head, of Philadelphia, to show the comparative value of cotton saturated with carbolized cosmoline, oxy-chloride of zinc, and gutta percha as materials for filling root canals.

In these experiments, first, three old or dry teeth with single straight roots were used. The pulp chambers were opened and the canals enlarged to admit of easy access and insure a perfect adaptation. The teeth were then warmed to the temperature of the body and one filled with gutta-percha, one with oxychloride and the third with cotton saturated with carbolized cosmoline. The crown cavities were each filled with gold and gutta-percha. After the teeth had been thus carefully filled they were soaked for twenty-five days in a solution of red analine ink; the teeth were then removed from the solution and the root canals exposed with their fillings. It was found that in the tooth filled with gutta-percha, the ink had not only found its way in around the filling but had penetrated the entire dentine of the root, and the same thing had taken place with the tooth filled with oxychloride of zinc. But the root that had been filled with carbolized cosmoline and cotton showed no trace of the ink stain, except immediately about the apical foramen; on the contrary the tooth had a greasy translucent appearance, indicating that the cosmoline had penetrated the entire dentine.

The same experiments performed with freshly extracted teeth produced somewhat different results. In the teeth filled with gutta-percha and oxychloride of zinc, the ink had penetrated around the root filling as before, but the red stain was found only in a small layer at the outer border of the dentine, next to the cementum, while the portion of dentine next to the root canal showed only a slight trace of the color of the ink, showing that by a process of osmosis the coloring matter of the ink has passed through the fluid remaining in the dental tubuli and was deposited at the peripheral ends. The tooth that was filled with the cotton and carbolized cosmoline showed no trace of the ink stain, but the cosmoline had only penetrated the dentine for a limited space just around the pulp canal, showing that the fluids contained in the tubuli had dammed out the cosmoline. Dr. Head is of the opinion that if the fresh teeth were to remain in the ink solution for a longer time they would show a correspondingly increased amount of the coloring matter of the ink deposited in the dentine.

DISCUSSION.

Dr. Barrett—The difficulty in filling root canals is to perfectly seal the apical foramen. This is not only the case with teeth

having small and tortuous canals, but I believe many roots have more than one opening through which the nerve and artery enter to the pulp. I have seen cases where there was not only an opening at the apical end of the root but further up along the side will be found another opening, or perhaps two, hence the difficulty of enlarging the canals to gain access, and of introducing any filling material that will exclude extraneous fluids.

Dr. A. O. Hunt—I have a number of specimens in my possession showing several openings into the root canal at other points than the apex of the root. I account for it on the supposition that in the development of the root from the papilla a small artery or nerve from the dental follicle to the papilla has been surrounded by the deposition of the inorganic material around it, and when the tooth is completely formed it remains as a connection between the pulp and peridental membrane.

Dr. A. W. Harlan—A tooth that is saturated with cosmoline will so change its color as to be objectionable. Am satisfied that a root can be so filled with gutta-percha that it will exclude all moisture. My method is to thoroughly dry the root with hot air blasts and then introduce eucalyptol, which is diffusible and in which gutta-percha is soluble. After wiping out the excess, I pump in chlora-percha, and then take up on a heated instrument a cone of gutta-percha (never heat the gutta-percha) and force it into the root, allowing excess of chlora-percha to flow out.

Dr. H. J. McKellops—I am one of the first to advocate the use of chlora-percha for filling roots, and I still consider it good practice. I do not think any man can dress out the majority of root canals so that they can be filled with cotton or gold satisfactorily.

Dr. S. A. White—I have had trouble in filling roots with chlora-percha because of forcing it through the apical foramen. I prefer to use the long staple cotton, saturated with chlora-percha, and have no difficulty in introducing it into most roots. My favorite method of filling the six front teeth is with a plug of hickory wood, cut around with a sharp knife a short distance from the end, so it will break off readily, then dipping it in chlora-percha and driving it into the root, and breaking it off where cut. This closes the apical foramen and the canal can then be filled with almost any material.

Dr. Barrett—For many years I used cotton saturated with chlora-percha, but found it unreliable and have now abandoned it for the gutta-percha cones.

Dr. Ward—I presume one will have most success with the method he habitually practices, but I have been compelled to extract many teeth because of the peridental inflammation following the insertion of fillings of chlora-percha. I have had the best success with the oxychloride of zinc.

Dr. W. H. Morgan—I have been filling roots of teeth for over forty years. I enlarge the canals without exception, unless it is impossible to do so, which is seldom the case, removing as much of the dentinal tissue as possible, so that there will be less organic material to disintegrate and cause inflammation of the peridental membrane. I am particularly anxious that the whole tooth shall be rendered antiseptic, and the surrounding tissues made healthy before filling. I stop the apical foramen with a small gold, tin, or lead wire and then fill the body of the canal with oxychloride of zinc and gold. I think oxychloride of zinc best because it will absorb the gases resulting from the decomposition of the remaining organic fluids and tissues. I don't believe any root was ever perfectly filled with chlora-percha.

Dr. James Truman—I do not think it is possible to perfectly fill the root of a tooth, because it is impossible with any of the present materials to fill the tubuli of the dentine. I have made some experiments with the idea of securing an antiseptic agent that can be forced into the dental tubuli. Chloride of zinc answers the purpose more satisfactorily than any agent I have been able to find, but its use requires care. My method is to permanently stop the apical foramen, and then introduce cotton saturated with chloride of zinc, and leave for three or four days, the zinc coagulates the organic materials. I fill the root permanently with oxychloride of zinc.

Dr. McKellops—I want to say that chlora-percha root fillings do not shrink if they are properly made. Oxychloride of zinc makes a good root filling, so does gold. Thirty years ago Dr. F. H. Badger suggested filling roots with gold, and a tooth that I then filled with gold is doing well to-day.

Dr. J. N. Crouse—Dr. Harlan says coagulants are bad. Dr. Truman says they are good. I use both methods and I get good results, as often from one as the other. What we need is to exer-

cise judgement in the selection of the proper treatment in each case, and not confine ourselves to any one special method of treatment.

Dr. J. D. Patterson—In small and tortuous canals I fill with chlora-percha. In making the chlora-percha I use the filling material instead of base plate. In roots having ready access I close the apical foramen with a small plug of gutta-percha and fill the balance of the canal with oxychloride of zinc, use a small pledget of cotton to force the oxychloride into the root canal.

Dr. J. Taft—It is a matter of considerable importance for us to discriminate in the matter of the age of the patient for whom we are operating. In young teeth the apical foramen is likely to be large and great care, not only in the selection of a proper material with which to fill but also in the manner of its introduction, is necessary. There is also more likely to be decomposition in young teeth than old ones. If proper care is exercised there need be no excuse for forcing the filling material through the root. A small broach introduced into the canal carefully will stop at the shoulder in the canal at the beginning of the apical foramen; the broach can then be marked and also the instrument with which the filling is introduced, and there need not then be any uncertainty about stopping at exactly the right place.

Dr. W. H. Dwinelle—I have been filling roots of teeth for fifty years. I fill with gold. I roll the gold into cones on a Swiss broach and carry to the end of the canal. I don't think it makes much difference what the material is with which the apical foramen is closed, so that it is perfectly sealed. Do not think wood is a good material.

Dr. W. W. Allport—When the pulp dies in a tooth it leaves the dentinal tubuli filled with dead and decomposing organic matter, and if the root canal is filled the gases pass out through the cementum and cause irritation of the peridental membrane. My practice is to close the apical foramen with oxychloride of zinc, and then fill the root canal with peroxide of hydrogen and allow it to remain a few minutes. I then remove the peroxide and thoroughly dry the tooth with hot air and hot instruments, then fill the root canal with oxychloride of zinc.

Dr. Sudduth—It is of no importance that the organic material in the tooth be coagulated, but it is necessary that the root be put in an antiseptic condition before it is filled. If the apical

foramen is perfectly sealed and the opening from the crown also, it does not make much difference what the root filling is. Micro-organisms will not develop in a tooth if the air is excluded. Micro-organisms are not found in healthy dentine. They are found in disorganized dentine because it is the micro-organisms that break down the dentine. They attack the organic portion of the tooth and leave the inorganic, which is dissolved by the acids secreted or formed by the micro-organisms themselves. The odor sometimes found in a dead dry tooth, the apex and crown of which have both been perfectly sealed, may be due to the development of some class of micro-organisms.

Dr. Smith, of Denver—I do not like oxychloride of zinc for root fillings because it disintegrates, gutta-percha is not good because it shrinks, wood is unprofessional and is only used by the back woodsmen of Indiana—Cravens objects.

Dr. F. Y. Clark—If you will fill the apex of a root for a short distance and then fill the crown and leave the tooth for some time and then open, you will find an odor coming from the putrefaction, produced by the air germs introduced during treatment. It is almost malpractice to enlarge a pulp canal. If the canal is thoroughly cleansed and disinfected with pure carbolic acid or creosote no decomposition will take place in twenty years.

Dr. Curtis read a paper written by Dr. Wilhelm Herbst, of Germany, entitled

FILLING TEETH WITH GLASS.

The paper described a method of making a glass inlay. Two kinds of glass are used, one the white glass of which lamp shades are made, and the other brown flint glass, such as chloroform bottles are made of. Each kind of glass is pulverized separately to a fine flour in a porcelain or agate mortar, in which no metal of any sort has been used. Wash the powdered glass with clear water until it is perfectly clean, dry and put in bottles for use. Cut out the cavity to be filled regular, with no undercuts, and be careful not to round off the edges. Take impression of the cavity with wax or compound and pour up the impression with gypsum and pulverized pumice, three parts of gypsum to one part of pumice. After the gypsum cast has become hard, mix eight parts of the white powdered glass with one part of the brown, wet and place in the gypsum cast, two-thirds full, remove the

surplus water with a dry cloth and further dry on a hot iron plate. When hot, remove to a piece of charcoal or soldering block and fuse with a blow-pipe, being careful that only an oxidized flame comes in contact with the glass. If the gypsum model is hot first the glass will flow readily. Variation of shades may be made by adding more or less of the brown powder. Sand placed in the gypsum cast will become attached to the glass inlay, on the under side, when it is fused, furnishing a roughened surface, to which the cement will adhere. After the inlay is made it is fastened in place with cement, an undercut having previously been made in the cavity.

Dr. V. H. Jackson, of New York, read a paper describing a method of

CORRECTING IRREGULARITIES AND THE APPARATUS USED.

The Doctor makes use of piano wire, bent in such a way as to retain a Coffen plate without running the rubber over the teeth, and by means of a wire running across the palate, with a loop on each end resting between the lateral incisor and first bicuspid and reaching out around the cuspid, he was able in a very short time to secure the necessary space and bring the cuspids into place. It is impossible to make intelligible a description of these methods without drawings of the models. The Doctor described a method of uniting two pieces of piano wire that is novel and very useful. The ends of the wires are laid one on top of the other and wrapped with fine copper wire, or ribbon, and then the wrapped joint is covered with tinnners solder. Projections of any sort can be added easily to an appliance in this way.

Dr. G. B. Watkins, of Detroit, presented a case of regulating, where a cuspid tooth that was late in erupting had been brought down by means of a lever attached to a gold band passing around on the labial surfaces of the teeth from the second bicuspid on one side to the first molar on the other. The lever was fastened by means of a silk ligature to a screw set into the lingual surface of the cuspid.

Dr. Hall, an American dentist practicing in Shanghai, China, was introduced and invited to address the association on the status of dentistry in the eastern countries.

Dr. Hall said that the only true dental practice in those countries was among the foreign residents, and by American or

European practitioners. Even in Japan little or no attention is given to conservative dentistry. The Chinese dentist will carve a rude set of teeth from bone and tie them in place, or an old woman sitting by the wayside will profess to extract worms from aching teeth, with a chop stick, thus relieving the toothache. There are nine American dentists practicing on the coasts of China, none in Japan and none in India. A young man of industry and talent who cannot succeed in securing a remunerative practice in this country should not expect to do better in China. The monetary success does not compensate one for the deprivations connected with life in these eastern countries.

The special committee appointed to draft suitable resolutions on the death of Dr. F. H. Rehwinkel, of Chillicothe, O., reported the following resolutions, which were unanimously adopted and ordered engrossed on the minutes of this meeting:

WHEREAS, It has pleased the Almighty Ruler of this Universe to remove from this life our friend and co-worker Dr. F. H. Rehwinkel; therefore, be it

Resolved, That in the death of Dr. Rehwinkel this association, and the profession at large, has sustained an irreparable loss.

Resolved, That as a friend and professional brother he was always most kind and faithful, and an earnest and honest worker.

Resolved, That to his bereaved family and friends we extend our heartfelt sympathy and condolence in their great affliction.

Resolved, That a copy of these resolutions be sent by the secretary of this association to the family of the deceased brother, and that they be published in the transactions and engrossed.

Signed by Committee, { J. TAFT,
W. H. MORGAN,
FRANK ABBOTT.

Dr. J. N. Crouse reported to the association that the International Tooth Crown Co. had served notice on him, while here in Saratoga, of suit which they had brought against him in New York, claiming damages to the amount of \$60,000. He also stated that the Dental Protective Association was well heeled and able to defend him, and would do so. But he and his attorney were of the opinion that the funds of the protective association should not be used to defend the officers, and that he alone would assume the expense of the defense in this suit.

A motion was made and unanimously passed appropriating

\$1,000, and instructing the treasurer to honor the drafts of Dr. Crouse for the above sum, to be used by him in defending this suit.

The next place of meeting was by ballot decided to be Excelsior Springs, Mo., about twenty-five miles east of Kansas City.

The executive committee were authorized to change the date of the meeting next year to such time as would not interfere with the attendance of any who might wish to attend the Berlin Congress.

The following officers were elected: President, Dr. M. W. Foster, of Baltimore; 1st Vice-President, Dr. A. W. Harlan, of Chicago; 2nd Vice-President, Dr. J. D. Patterson, of Kansas City; Recording Secretary, Dr. G. H. Cushing, of Chicago; Corresponding Secretary, Dr. Fred A. Levy, of Orange, N. J.; Treasurer, Dr. A. H. Fuller, of St. Louis.

Executive Committee—W. W. Walker, S. H. Guilford, S. G. Perry.

Local Committee of Arrangements—J. D. Patterson, Kansas City, Mo; John W. Meng, Lexington, Mo.; Z. B. Hewitt, Kansas City, Mo.

Publication Committee—W. C. Barrett, J. S. Marshall, Geo. H. Cushing.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Dental Examiners held its eighth annual session in the Town Hall, Saratoga Springs, N. Y., commencing Tuesday, August 6, 1889, at 1 o'clock P.M.

The following State boards of examiners were represented: Illinois by C. R. E. Koch; Ohio, J. Taft, H. A. Smith; New Jersey, F. A. Levy, J. G. Palmer; Indiana, S. T. Kirk; Maryland, T. S. Waters; Massachusetts, L. D. Shepard, J. S. Hurlbut; Vermont, Geo. H. Swift, James Lewis; Delaware, C. R. Jefferis, T. H. Gilpin; Colorado, P. T. Smith; Georgia, A. G. Bouton.

Delaware and California were admitted to membership.

Drs. Jefferis, Shepard and Koch were appointed a committee to consider a mass of correspondence with reference to the standing of a college whose name had been omitted from the list of colleges whose diplomas were recommended to be received by the State boards. This committee was afterwards constituted the Committee on Colleges.

The committee at a later session reported, recommending that the secretary be instructed to inform the Dental Department of St. Louis College of Physicians and Surgeons that owing to insufficient information the association is unable to take final action on its application for recognition ; and sustaining the action of the officers in omitting the name of the University of Maryland, Dental Department, from the printed list of recognized colleges last year. The report was received and adopted unanimously.

The committee also reported the following list of colleges which may be recommended as reputable by this association :

- American College of Dental Surgery, Chicago, Ill.
- Baltimore College of Dental Surgery, Baltimore, Md.
- Boston Dental College, Boston, Mass.
- Chicago College of Dental Surgery, Chicago, Ill.
- College of Dentistry, Department of Medicine, University of Minnesota, Minneapolis, Minn.
- Dental Department, Columbian University, Washington, D. C.
- Dental Department of Northwestern University, Chicago, Ill.
- Dental Department of Southern Medical College, Atlanta, Ga.
- Dental Department of University of Tennessee, Nashville, Tenn.
- Harvard University, Dental Department, Cambridge, Mass.
- Indiana Dental College, Indianapolis, Ind.
- Kansas City Dental College, Kansas City, Mo.
- Louisville College of Dentistry, Louisville, Ky.
- Minnesota Hospital College, Dental Department, Minneapolis, Minn. (Defunct).
- Missouri Dental College, St. Louis, Mo.
- New York College of Dentistry, New York City.
- Ohio College of Dental Surgery, Cincinnati, O.
- Pennsylvania College of Dental Surgery, Philadelphia, Pa.
- Philadelphia Dental College, Philadelphia, Pa.
- School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn.
- St. Paul Medical College, Dental Department, St. Paul, Minn. (Defunct).
- University of California, Dental Department, San Francisco, Cal.
- Northwestern College of Dental Surgery, Chicago, Ill. (Defunct).
- University of Iowa, Dental Department, Iowa City, Ia.
- University of Maryland, Dental Department, Baltimore, Md.
- University of Michigan, Dental Department, Ann Arbor, Mich.
- University of Pennsylvania, Dental Department, Philadelphia, Pa.
- Vanderbilt University, Dental Department, Nashville, Tenn.

The committee recommended also that the standing Committee on Colleges be instructed hereafter to take cognizance of and investigate all charges against any college, that they give

the accused an opportunity for defense, and that they report a revised list of colleges at each annual meeting after having investigated all complaints; and that this same committee also have authority to inquire into the proper equipment and organization of colleges not now on our list, so that they may be able to report as to the capability of such institutions to give acceptable instruction, both as to the quality and quantity of its teaching.

After hearing the representative of the College of Dental Surgery of the University of Denver, Dr. P. T. Smith, that institution was added to the list, and the report was then adopted.

Dr. Koch offered resolutions that it is the sense of this association that no one should be permitted to assume the responsibilities of a dental practitioner until he shall have had at least three years' previous study and instruction, inclusive of three full terms of not less than five months each, in a properly organized and equipped dental college, provided that time spent in the study of medicine or graduation from a medical college may be credited on this requirement not to exceed the period of two years or two full terms of collegiate instruction; and recommending to such State boards of dental examiners as are by the laws of their respective States required to issue licenses to practice dentistry to all holders of diplomas from reputable dental colleges that they make such rules as shall require all colleges to make three full calendar years of study and the attendance upon three full college terms of not less than five months each a prerequisite to graduation; and that only such colleges as shall comply with this rule on or before the beginning of their scholastic year of 1890-1 should thereafter be considered as reputable; and that all State boards should, when their State laws permit the same, decline to grant a license to practice to any one who cannot produce evidence showing that he has spent at least three full years in study and preparation before attempting to assume the responsibilities of a dental practitioner.

Referred to a committee consisting of Drs. Kirk, Palmer and Bouton, with the information that the National Association of Dental Faculties had adopted a rule to go into effect at the session of 1891-92 requiring attendance upon three full regular courses before examination for graduation. The committee reported recommending that the portion "relating to States where an examination is held and license granted be approved." The report was adopted.

Dr. Koch moved that the secretary be instructed to publish a notice in the dental journals informing all dental colleges not now recognized as reputable by this association that in order to be enrolled upon the list of colleges recognized by it it will be necessary for such colleges to apply for recognition and show that their workings are such as to entitle them thereto. So ordered.

Dr. Shepard moved to make the standing Committee on Colleges consist of five members, whose duty it shall be to report annually upon the colleges entitled to recognition. So ordered.

The following officers were elected: T. S. Waters, Baltimore, president; C. R. E. Koch, Chicago, vice-president; F. A. Levy, Orange, N. J., secretary-treasurer. The president appointed as the Committee on List of Reputable Dental Colleges Drs. L. D. Shepard, C. R. E. Koch, C. R. Jefferis, F. A. Levy and S. T. Kirk.

Adjourned to meet at the time and place of the next meeting of the American Dental Association, at 9 A.M. of the first day.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The sixth annual session of the National Association of Dental Faculties was held in the Town Hall, Saratoga Springs, N. Y., commencing Monday, August 5, 1889, at 10 A.M.

The Executive Committee reported that credentials had been received in accordance with the resolution adopted last year from the following colleges:

Chicago College of Dental Surgery, Truman W. Brophy.
Indiana Dental College, J. E. Cravens.
State University of Iowa, Dental Department, A. O. Hunt.
New York College of Dentistry, Frank Abbott.
Boston Dental College, J. A. Follett.
Harvard University, Dental Department, T. H. Chandler.
Ohio College of Dental Surgery, H. A. Smith.
University of Pennsylvania, Dental Department, James Truman.
Baltimore College of Dental Surgery, R. B. Winder.
Dental Department of Southern Medical College, L. D. Carpenter.
Vanderbilt University, Dental Department, W. H. Morgan.
University Dental College, J. S. Marshall.
Missouri Dental College, W. H. Eames.
Kansas City Dental College, J. D. Patterson.
Dental College of University of Michigan, J. Taft.

Subsequently credentials were received from Pennsylvania

College of Dental Surgery, represented by C. N. Peirce; Harvard University, Dental Department, Thos. Fillebrown; and Louisville College of Dentistry, J. Lewis Howe.

Columbian University, Dental Department, represented by J. Hall Lewis, and University of Maryland, F. J. S. Gorgas, were elected members of the association. The application for membership of Royal College of Dental Surgeons of Ontario was reported favorably, but the Executive Committee expressed a doubt as to the propriety of admitting it owing to the title of the association, which would seem to confine membership to colleges in the United States.

Applications from American College of Dental Surgeons, Chicago, College of Dental Surgery of the University of Denver, and College of Dentistry, Department of Medicine, University of Minnesota, were laid over one year under the rules.

After a long discussion, the association adopted by a vote of twelve to six a rule requiring attendance upon three full regular courses in separate years before examination for graduation. By a vote of eighteen to one the length of the regular courses was made "not less than five months each."

The time when the new rules shall go into effect was, on motion of Dr. Truman, fixed at the beginning of the session of 1891-92. It was also ordered, on motion of Dr. Patterson, that the resolutions requiring attendance on three terms be published in the announcements of the various colleges for the session of 1890-91.

A committee, consisting of Drs. Truman, Taft, Cravens, Brophy and Howe, was appointed to take into consideration the equalization of college fees. The committee subsequently reported a partial tabulation of fees, with a recommendation that the minimum fees be fixed at \$100 a year. The report was laid over under the rules and the committee continued.

Drs. Cravens, Marshall and Patterson were appointed a committee to codify the rules and report next year.

Dr. Fillebrown, from the committee appointed to consider the request of the Baltimore College of Dental Surgery with reference to the granting of the degree D.D.S. to a prominent practitioner without attendance upon lectures, reported in favor of declining the request. The report was accepted.

On motion of Dr. Gorgas, amended by Dr. Brophy, it was

ordered that the colleges of this association print the list of their matriculates at the previous session, with the States or countries from which they come, in their annual announcement, with an asterisk (*) opposite the names of those not in attendance and a foot-note stating the fact.

On motion of Dr. Truman, it was ordered that colleges making application for membership be notified by the secretary that it will be necessary for them to appear by representative before the executive committee.

Dr. Marshall offered the following, which was adopted :

Resolved, That all applications for membership reported upon favorably by the executive committee shall lie over one year before final action may be taken thereon.

Dr. Abbott offered a resolution requiring colleges of this association desiring to confer the honorary degree, to submit the names of the persons so to be honored to this association for approval. Adopted.

The Committee on Text-Books reported that the work recently published by Dr. Fillebrown had not been submitted to the committee for approval. The report was accepted.

The committee also reported that they had examined the work on "Orthodontia" compiled by Dr. S. H. Guilford, and they recommended that it be adopted as a text-book. The report was accepted.

On motion of Dr. Truman, the work on "Dental Chemistry," by Dr. Clifford Mitchell, was accepted formally as a text-book.

The following resolutions were laid over under the rules :

Offered by Dr. Brophy :

Resolved, That graduates in medicine who have not had at least two years' practice in operative and prosthetic dentistry shall be required to attend the lectures and engage in the practice-work in these departments during two annual sessions previous to admission to the examinations for the dental degree.

Offered by Dr. Patterson :

Resolved, That after the session of 1891-92 a diploma from a reputable medical college shall entitle its holder to enter the second course in dental colleges of this association, but shall not entitle him to an entrance into the senior class.

The following officers were elected for the ensuing year :

James Truman, president ; L. D. Carpenter, vice-president ; J. E. Cravens, secretary ; A. W. Harlan, treasurer ; Frank Abbott, J. Taft and F. J. S. Gorgas, executive committee.

The following committees were appointed: *Ad interim* committee, Drs. T. W. Brophy, R. B. Winder and J. A. Follett; Committee on Schools, Drs. H. A. Smith, J. D. Patterson, J. Lewis Howe, W. H. Morgan, W. H. Eames.

Adjourned to meet at the call of the executive committee.

Correspondence.

"I charge you that this epistle be read."

INTERNATIONAL DENTAL CONGRESS.

EDITOR OF THE OHIO JOURNAL:—The International Dental Congress of Paris has just closed after a six days session. The Congress was organized, and successfully carried through, by the combined efforts of the Odontological Society of France, and the Odontological Society of Paris; and they deserve great credit for the grand success of this, the first International Dental Congress ever held. It being held in this great capitol, and during the Universal Exposition, has had much to do in getting together so many dentists from all parts of Europe and the United States. They came from Russia, Germany, Austria, Hungary, Holland, Spain, Italy, Switzerland, Cuba, United States, and the South American States, and England and Australia; but of course the greatest numbers came from France, nearly every city and town of importance being represented.

The Congress was opened at the Trocadero Palace, under the presidency of the minister of commerce, assisted by Professor Gariel of the faculty of medicine, of Paris. Each morning was devoted to clinics and exhibitions of instruments, at one of the dental colleges, and the afternoon was devoted to the reading of papers, and discussions. The papers read were of a fair order of merit. I was struck with the great number of papers on anæsthetics—in point of number as great as all the other papers, showing that the French dentist must still resort to the forceps, to a great extent, in his practice. But one has only to practice among the French to know how badly they bear pain. One cannot do heroic operations for them, as he can for an American. They prefer to lose their teeth rather than to submit to much pain.

Perhaps it is a fault in their constitution, or in their education. But I have known many a dentist, fresh from America, who was going to educate them to appreciate and endure American dentistry, to be compelled to at least modify his methods, or starve.

Much bridge and crown-work was shown. A movable bridge was exhibited by a dentist from Penzance (a descendent of one of the pirates), which was far ahead of any thing of the kind I have ever seen. He had it in working order in his own mouth. The one great thing to recommend it is that it can be removed and cleansed, which, to my mind, has always been an objection to the bridge-work ordinarily made; for it stands to reason that a plate which cannot be removed must become foul. I hope a description of it will be published, and if so will send it to the JOURNAL.

The Congress closed by a banquet, at which 220 persons sat down. After the inner man had been abundantly refreshed with solids and liquids, the outer man was entertained by toasts and speeches, in various languages, which made one wonder if it was not something similar to the first banquet given after the confusion of tongues, occasioned by the failure of the first attempt at building Eiffel tower.

An old dentist, said to be ninety years of age, was present, and replied to a toast drank to himself. He is said to be still in practice, and one may believe it, as they say he has just married a new wife.

Our country was represented by Harlan, of Chicago, Bonwill, of Philadelphia, Parmly Brown, and Parr, of New York. Bogue, of New York, was one of the Vice-Presidents. Each person present was presented with a medal in bronze commemorative of the occasion. On one side it reads, "Republic Francaise Exposition Universelle Congres Dentaire International de Paris, 1889." On the reverse side, "Societe Odontologique de France, Societe Odontologique de Paris." After which the banquet closed by singing the Marssillaise.

PARIS, Sept. 8, 1889.

N. W. WILLIAMS.

DR. R. L. EVANS.

WE are called upon to chronicle the death of DR. R. L. EVANS, of Toledo, O., which occurred on Tuesday, September 3, 1889. Dr Evans was born in Greenock, Scotland, in 1832. His parents moved to Canada when he was but a few years of age. When about 12 years old his mother, then a widow, remarried, and not finding this man a congenial father he resolved to make a start in the world for himself. He left home penniless, but met his uncle by the wayside whom he told he was bound for Cleveland, Ohio. His uncle having fifty cents in change, gave it to Evans with words of advice. By walking and an occasional wagon-ride he reached Cleveland, and there spent his fifty cents for meals and lodging. The next day, an opportunity occurring, he accepted a situation in a machine shop where he learned the trade, remaining in Cleveland several years, then going to Norwalk to engage in locomotive work. While here he was impressed with the idea of studying dentistry, and decided to become a professional man. He received a diploma from the Ohio College of Dental Surgery in 1854, and began practice at Tecumseh, Mich., in 1856, where he married Miss Caroline James in October, 1857. The following year he came to Toledo, where he has since been in actual practice up to the time of his death.

He was a member of the Ohio State and Mississippi Valley Dental Societies, a Mason and Knights Templar.

He leaves a wife, one son and a large circle of friends and acquaintances to mourn his loss.

Societies.

"Wherewith one may edify another."

OHIO STATE DENTAL SOCIETY.

THE next meeting of the Ohio State Dental Society will be held at Cleveland, on Oct. 29th, 30th, 31st.

Meeting at "The Hollenden," corner Superior and Bond Sts.

C. M. WRIGHT, *President*.

J. R. CALLAHAN, *Secretary*.

J. E. ROBINSON, *Chr. Com. of Arrangements*.

SOUTHERN MINNESOTA DENTAL SOCIETY.

THE Semi-Annual meeting of the Southern Minnesota Dental Society will be held at Zumbrota, on Oct. 15 and 16, 1889.

M. M. DAVIDSON, *Secretary*.

Books and Pamphlets.

A TREATISE ON SURGERY. Its Principles and Practice by T. Holmes, M. A. Cantab., edited by T. Pickering Pick. pp 1,008, 428 illustrations. Philadelphia: Lea Bros. & Co., Publishers. Price, cloth, \$6.00.

This book has now reached its fifth edition and there are few who have not at least heard of it as an excellent treatise on surgery, standing, as it does, among the best works on this subject. It is written in the best of style, concise and to the point. The illustrations are good and greatly enhance the value of the book. Such changes and additions have been made as were necessary to bring the work into conformity with the latest and best methods of the diagnosis, management and treatment of surgical diseases.

We cannot in our limited space give a definite idea of the vastness of the work, but from the following heads of chapters one can readily estimate its worth: Chapter I. Inflammation and the process of union in the soft parts. —Traumatic Fever—Dressing of wounds. II. The Complication of Wounds and Injuries. III. Poisoned Wounds and Animal Poisons. IV. Hemorrhage and Collapse. V. Burns and Scalds. VI. Fractures and Dislocations. VII. Injuries of the Back. IX. Injuries of the Face, (including fractures, dislocation and subluxation of the jaws). X. Injuries of the Neck. XI. Injuries of the Chest. XII. Injuries of the Abdomen. XIII. Injuries of the Pelvis. XIV. Injuries of the Upper Extremity. XV. Injuries of the Lower Extremity. XVI. Gunshot Wounds. XVII. Tumors. XVIII. Scrofula. XIX. Hyetaria. XX. Gonorrhea and Syphilis. XXI. Ulcers

--Cicatrices and their Diseases. XXII. Diseases of the Bones. XXIII. Diseases of the Joints. XXIV. Diseases of the Spine. XXV. Diseases of the Muscles and Bursæ. XXVI. Clubfoot and other Deformities--Orthopedic Surgery. XXVII. Affections of the Nerves. XXVIII. Diseases of the Arteries. XXIX. Diseases of the Veins and Absorbents. XXX. Surgical Diseases of the Head and Face. XXXI. Surgical Diseases of the Digestive Tract--Tongue, Pharynx and Oesophagus, Intestinal Tube, etc. XXXII. Hernia. XXXIII. Diseases of the Rectum. XXXIV. Diseases of the Larynx. XXXV. Diseases of the Ear. XXXVI. Diseases of the Urinary Organs. XXXVII. Calculus. XXXVIII. Diseases of the Male Organs of Generation. XXXIX. Surgical Diseases of the Female Organs of Generation. XL. Diseases of the Breast. XLI. Disease of the Thyroid Body. XLII. Diseases of the Skin and its Appendages. XLIII. Minor and Operative Surgery, Anæsthetics, Means of Restraining Hemorrhage. Plastic Surgery, Amputations, Excisions of Bones and Joints, etc.

Altogether it is a very valuable book and no dentist should be without a work of this kind. It so thoroughly fills all requirements that we heartily recommend it to our readers.

PHYSICIANS LEISURE LIBRARY.

Series II of these popular books contains the following works:

THE DIAGNOSIS AND TREATMENT OF HEMORRHOIDS, By C. B. Kelsey, M. D.
DISEASES OF THE HEART, By Dujardin-Beaumetz M. D., translated by E. P. Hurd, M. D. 2 vol.

THE MODERN TREATMENT OF DIARRHEA AND DYSENTERY, By A. B. Palmer, M. D.

INTESTINAL DISEASES OF CHILDREN, By A. Jacobi, M. D.

THE MODERN TREATMENT OF HEADACHES, By Allen McLane Hamilton, M. D.

THE MODERN TREATMENT OF PLEURISY AND PNEUMONIA, By G. M. Garland, M. D.

HOW TO USE THE LARYNGOSCOPE.

DISEASES OF THE MALE URETHRA, By F. N. Otis, M. D.

THE DISORDERS OF MENSTRUATION, By Edward W. Jenks, M. D.

THE INFECTIOUS DISEASES, By Karl Liebermeister; translated by E. P. Hurd, M. D.

The series certainly afford practitioners and students an opportunity for obtaining a working library of books by the best authors at a price which places them within reach of all. The books are amply illustrated, and issued in attractive form. Price 25 cents per copy, paper; and 50 cents per copy, cloth. Geo. S. Davis, Publisher, Detroit, Mich.

BOOKS RECEIVED.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES, issue 1889, Vol. I, II, III, IV, V. Editor-in-chief, Dr. C. E. Sajous. Philadelphia: F. A. Davis, Publisher. Cloth, price \$15.00.

ORTHODONTIA OR MALPOSITION OF THE HUMAN TEETH; its Prevention and Remedy, By S. H. Guilford, A.M., D.D.S., Ph. D. Philadelphia: Published by the author.

THE
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—OF—
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Contributions.

"A word fitly spoken is like apples of gold."—SOLOMON.

THE DEWEY CROWN.*

BY DR. S. B. DEWEY, CLEVELAND, O.

IN devising this crown that I now have the honor of showing you to-day, it was my object to produce one more perfect in its details than any yet offered, and at the same time so simple in its construction as to be easily mastered by all. Whether I have succeeded to these ends will be left to you to render the verdict.

Let us now proceed to place one on a root in the mouth. Fig. A represents post made of platinum and iridium, hollow and cut away near the end enclosed by the root to prevent it from turning or being withdrawn after being cemented in the root. The upper end of post is threaded internally to receive retaining screw, Fig. B—the enlarged head of it fits countersink in crown to keep it from slipping off the post. The crown, Fig. C, is of porcelain with a bore running through of sufficient size to admit the post, with countersink on coronal end to receive head of retain-

* Clinic and description of same before the October meeting of the Cleveland Dental Society.

ing screw, B. Fig. D, root cut to gum line ready for crown. Grind root at outer and inner side so as to make the end slightly convex. Enlarge nerve canal to such depth as required to sustain crown, and only large enough to admit post, having bore of equal diameter the entire length. If the root is much hollowed out with decay, fill first with amalgam and drill hole in that for the post. Cut your post the required length. If a bicuspid, have the post the thickness of retaining screw head short of bite, bend post to proper alignment, cut strip of pure gold or platinum plate, No. 30, large enough to little more than cover end of root, punch a hole in center of same diameter as post, the post being in root put plate on post and burnish down to root until its outline is imprinted on the plate. Place a little wax around post above plate and press tightly down on root, remove, invest and solder post to plate. Trim plate to wear outline of root, replace and again burnish until it fits the root accurately, then trim to edge of root, thus giving you a post with cap, Fig. E, fitting your stump perfectly. Next select your crown, preferably larger than the case requires. Grind base end until, when placed on post it fits down on crown side of cap perfectly, allowing post to project through crown so as to be flush with lower edge of countersink. If the crown is larger than the root it will project over sides of cap, grind down to plate and polish giving a perfect contour of the natural tooth, not leaving any overhanging portions where food or any foreign matter may lodge. The grinding of the crown may be done with little trying in the patient's mouth for we know that if it fits the post and cap, all the parts will go to place without any trouble.

Now we are ready to put our crown in place. First dry the root which we suppose has had the apex stopped and is ready to receive a crown. Fill the bore in the root with any suitable cement mixed to the consistency of thin cream, insert post and push home, the post going to the bottom of the bore and not filling under as it would do if the post were solid and thus raising the cap from the stump, but letting the surplus cement enter the hollow post, allowing it, as we said before, to go to the bottom of the bore bringing the cap down tight on the root with only enough cement under it to seal up the joint. When this has

FIG. B.



FIG. A.

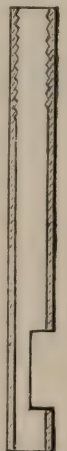
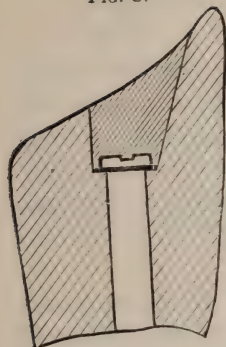


FIG. C.



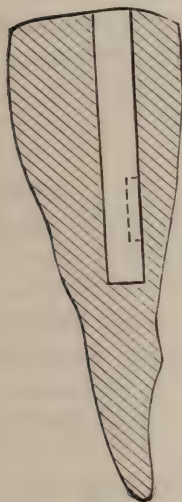
hardened a little, mix more thin cement and spread on cap and post, put on crown and press to place, turning in retaining screw and covering with cement.

Should the crown become broken it can be replaced without disturbing the post or root by simply turning out retaining screw and grinding another crown to fit cap and post. We think the latitude for setting this crown as great or greater than any before offered. First, it can be set as above; secondly, it can easily be converted into a band crown whenever it may seem desirable by fitting the band and placing the already fitted cap on it and soldering together, forming an accurately fitting cap with rim; thirdly, it may be ground to fit the root end without any intervening plate.

DISCUSSION.

Dr. C. R. Butler.—Had seen the crown before, but this was the first opportunity to see it as set in the mouth—thought it the best crown yet invented. There is a degree of accuracy obtained that has never been shown before in crown setting, and very simple. So far as strength is concerned, it is stronger in some respects than others, if not the strongest on the market. The small hollow

FIG. D.



post has many advantages with great strength; also the facility with which it can be removed in case of necessity.

Dr. H. H. Newton.—I am very much pleased and think it the crown of the future. It is so easily adapted to the root that it recommends itself, but will require nice manipulative skill in its construction and adaptation. I thought at first that the post was too small and was a little weak, but upon reflection, came to the conclusion that it was as large as could be used wisely in small teeth.



FIG. E.

Dr. Lyder, Akron.—I can but voice the good things spoken by the previous gentlemen.

Dr. H. F. Harvey.—Had never seen a Bonwill crown broken and thought the Dewey crown even stronger than the Bonwill, and the adaptation to the root more easily and perfectly secured. Regarded it as the best crown he had seen, and saw no disadvantage except it might be in an exceptionally small or flattened root, and suggested that for such cases a solid pin might be used for that portion embedded in root.

Dr. H. Barnes.—The advantage of the Dewey crown seems to be in the perfect adaptation of the crown to the root made possible by the hollow pin and cap soldered to it. Can conceive of cases especially in small laterals and bicuspidis where the band with cap might give additional strength. The trouble with most crowns is that the pin is so large as to make necessary the cutting away of a large portion of the root, while the Dewey pin permits the retention of the root strength while being self-strengthening because of perfect adaptation.

Dr. J. E. Robinson said that he thought the Dewey crown, for so he believed it to be named, to be far superior in strength and adaptation to any porcelain crown he had yet seen. In bicuspidis and laterals where, of necessity there must be small anchorage for the post, those presented by Dr. Dewey seemed, owing to their cylindrical form, to have more strength than any other, and still possessed the merit of permitting the operator to preserve more of the tooth structure. Another feature he felt would be of benefit was, the accuracy of adjustment.

Dr. J. R. Bell.—It is impossible to measure the force of the human jaw in the process of mastication. I know it varies in individuals, and I have made it a custom to examine crowns as well as fillings and dress them off as a preventive against periosteal trouble, where occlusion can be detected. Of course a hard bite upon this crown in the right direction *might* cause it to vibrate and the least movement would allow secretion the cap, but on the whole think it stronger than any other crown. I am very much pleased with its simplicity and accuracy. Another feature I observe in its advantage in case of breaking of the post, it being hollow could be split with a small fissure bur and removed.

Dr. H. M. Albaugh.—In my estimation this crown will be a valuable acquisition to what we already have in the way of por-

celain substitutes for the natural teeth. Here we have the greatest strength of any crown with a separate pin, the pin or tube fitting the hole in the crown closely. We have the advantage of being able to set the pin firmly in the root before putting on the crown. The pin being hollow allows the excess of cement to force up, and we are able to get the pin to the extreme end of the bore, and this cement forcing out and filling the notch or slot in the side of the pin will surely make a very strong attachment. At first view I thought the pin looked weak, but when we take into consideration the fact of the gold plate fitting perfectly on the end of the root and then soldered to the pin, this objection vanishes. As to the amount of time required to set the crown I should think (having had one set in my own mouth) that with a little practice, even an operator with average ability, would not consider it a tedious operation, or one hard to perform.

Dr. J. R. Owens.—The Dewey crown is ingenious and in most cases a very practical one. In cases of small or short roots upon which crowns are to be placed it would not be entirely satisfactory, nor where the teeth come close to the gum in articulation. But where root and articulation are favorable, they will, if properly placed, make a substitute as satisfactory as any method I know of. The hollow post which allows the surplus of cement an exit is unique. The notch in the post is a precaution against twisting as well as its withdrawal. The porcelain crown has as much body as it is possible to give it, and the ease with which another can be placed upon the imbedded post, if the crown should break, is highly satisfactory. The close fitting metal plate that covers the root, protecting it, and the cement which holds the post in place, is a very desirable feature. It is not particularly difficult of manipulation, but like all successful accomplishments requires care, honest work and good common sense.

TREATMENT OF PYORRHEA ALVEOLARIS AND SIMILAR TISSUE ALTERATION.

BY CHAS. B. ATKINSON, D.D.S., NEW YORK.

THE varying conditions of the tissues must be the daily guide for their treatment. A *general* statement of treatment may be

as follows: When the tissue is dark, blue in color, swelled and soft, lancing, to relieve the venous congestion, and injection of acid, sulphuric aromatic, full officinal strength are indicated.

Where it is evident suppuration is present, has been or will be, more or less immediately, evacuation of the pus, hydrogen peroxide and caustic paste (potassa fusa $\frac{2}{3}$ and acid carbohc crystals $\frac{1}{3}$) are indicated. Here let it be said, hydrogen peroxide when properly made is harmless to the tissues. There is plenty of commercial hydrogen peroxide containing excessive quantities of acid, therefore care should be exercised to procure such only as is especially prepared for medicinal use. Chas. Marchand, a competent chemist of New York, undertakes to supply in packages bearing his signature a quantity of hydrogen peroxide, harmless to the normal tissues. It is this preparation that is specifically recommended. To resume: When the tissue assumes a cherry red color, acid salicylic, solution saturated in alcohol is indicated. When a warm pink color shows with or without a speckled appearance (one evidence of fresh granulation), acid tannic, saturated in glycerine, is indicated. Also constant exhibition of antiseptic and stimulating mouth-washes, and insist ever upon their faithful daily use especially on rising and retiring.

Solution hydrarg bi chlor. 1 to 500 solution, hydro naphthol saturated in water, and hydrogen peroxide represent washes which may be flavored advantageously with tincture calendulæ, 3ss to each ounce of solution, and used largely, especially the latter two.

Each case necessarily presents its own features of alteration and alternation, and the foregoing is advanced as a general statement of conditions and treatment which have been uniformly *successful*, irrespective of theories of, or experiments in chemical action on tissue separated from its vital connection.

Many conditions of inflammation soon reach a stage of restoration where simple syringing or spraying with hydro naphthol solution fulfills all requirement for aid to nature's efforts.

The above deals with *local* manifestations, and reference only is made to systemic indications.

SOME HINTS ON FILLING AN ARTIFICIAL TOOTH.

BY C. C. EVERTS, M.D., INDIANAPOLIS, IND.

WE often meet cases in practice where one or more gold fillings are almost a necessity, to make artificial teeth look natural and disguise art. For a person who has for years had a display of gold work in their front teeth, to suddenly appear with a perfectly sound and white set of teeth, not only advertises their artificiality, but does it in so open a manner that it cannot help but appear unsightly and unnatural to friends and acquaintances. Every dentist should be able to perform this operation in a thorough and sightly manner, but from the many miserable botches we see it is quite evident some are not. The first step is to shape the cavity. There are teeth on the market that are made with cavities, but you can seldom find one suited to the case in hand. I first grind the surface of the tooth I wish to fill with different sized corundum points, forming a shallow cavity, just the size and shape I want the filling. I generally in a full upper denture put two fillings, selecting the proximal surface of the central in one block and lateral in the other. I think two fillings look better than either one or three, but when you have extracted the natural teeth you can often copy the size and shape of fillings in the artificial set. I let the cavity extend pretty well over the face of the tooth, as the filling is there to show, and if it is down between the teeth it is shaded, looks dark and defeats its object. The next step is to drill the retaining point, the diamond pointed drill is the best to use for this, although it may be done with an extra hard tempered engine bit moistened with spirits of camphor. It is unnecessary to put much pressure on the drill, many drills are ruined and manufacturers blamed for this fault in the operator, simply hold it lightly against the tooth it will cut faster and no danger of breaking out the diamond point. The cavity should be kept wet. I take a common blow-pipe in my mouth, draw it full of water and hold the tongue over the end to prevent its escape; the small end of the pipe naturally comes over the work, and by admitting air I can regulate the amount of water just as I want it. It is not necessary to make the pit very large,

I make it a little larger than the drill and give it a slight undercut. The filling will hold if the gold is condensed properly. The tooth is now ready to fill and can be finished and polished on the lathe wheels, and if it has been properly done it will add a great deal to the appearance and materially to the dentist's profit.

CAUTION.

BY E. H. RAFFENSPERGER, D.D.S., MARION, OHIO.

THE old adage that "an ounce of prevention is worth a pound of cure," is exemplified many times in our practice as dentists. How frequently could a mortifying failure, or accident, have been averted by the exercise of a little due caution? but it seems as though we have to be tried in the fire of experience before we fully comprehend the meaning of the above quoted maxim.

Probably the most trying operation we are called upon to perform, and causing the careful and conscientious dentist the most anxiety, is one requiring the use of anæsthetics, and at the same time the utmost caution. But is the latter observed? I fear not. How frequently the death of a patient in the dental office from the effects of some anæsthetics is chronicled in the papers, and strangely enough, how carefully the real facts of the case seem to be concealed. Can there be a possibility that any of these sad accidents occurred by the operator not heeding the little word caution? Let us see.

If any of us have ever been in a hospital and witnessed an operation performed there by the surgeons, especially when an anæsthetic was used, I think we ought to have been observing enough and noticed particularly the position and surroundings of the patient, incident to the operation. The patient *lying full length* on the table, and the clothing, nearly every stitch on, while close at hand were all the agents used to restore the patient if any accident should occur. But why were all these details arranged before hand? Simply because the surgeons, recognizing the gravity and seriousness of taking the life of a fellow being in their hands, would not assume the responsibility without reducing it to the least possible risk. They recognize the fact that

while a person is under the effects of an anæsthetic, the flame of life is reduced to a mere spark, and by having the patient in a horizontal position and unincumbered with anything, bands, etc., they were simply assisting the weakened organs to perform their various functions.

So why is it that we, as dentists, do not follow the example of our more experienced brethren? Let us observe how an anæsthetic is generally administered in the dental office, and contrast the two methods. The patient comes in from the street, wants to have a tooth extracted, and wants to "take something," sits down in the chair, *clothing all on*. No preliminaries arranged. The anæsthetic is administered, the tooth is pulled, and the patient sent away happy. Now is it through carelessness or bull-headed luck that the patient survives? or is it because the dentist possesses more skill in administering the agent than the surgeons in the hospital? To be sure the dental patients are generally in a better physical condition, but the danger from the anæsthetic is nearly the same, and if perchance the patient should show any unfavorable symptoms, it might be too late to arrange the clothing and hunt up restoratives. So how much better it would be for all to use more caution than they now do.

For my part I am afraid of anæsthetics and hope I always shall be; and by reason of my fear, I am *compelled* to use every precaution that can be used, and I don't consider myself a "crank" on the subject either.

When it is necessary for me to use an anæsthetic I instruct the patient to bring in the family physician, also some friend. Under no circumstance will I recommend any physician, not even a friend; any right minded man can see the reasons for so doing, there is too much of this "legging" between dentists and physicians.

After the physician arrives I leave it to him to determine whether or not the patient is a proper subject and in good condition. I am simply employed to perform the operation, but I insist on certain conditions being complied with, namely, that the patient, if a lady, must loosen *all* the clothing, unfasten the corset, unbutton the shoes, and remove any garters or bands which might impede the circulation. If a man, he must take off the coat, vest, collar and shoes. The patient is then instructed to *lie* on the lounge, do not use the chair at all. Before com-

mening I have everything in readiness, battery ready to start, restoratives just where I can put my hands on them. I watch the pulse carefully, and at the signal from the physician that the patient is perfectly anæsthetized, I proceed with my work.

I have never had any unfavorable symptoms show themselves since I resorted to this method. Many physicians flatly refuse to administer an anæsthetic to a patient in the dental chair, but all concur with me that it is the *only* proper way.

I know I may be "carrying coals to Newcastle" by writing the above, and I still further know that there is gross neglect and carelessness on the part of dentists who are daily using anæsthetics; no matter what the anæsthetic is I contend that it is only proper we should use more caution. Paradoxical as it may seem, it is nevertheless true, that those who are the least acquainted with the physiological action of anæsthetics, are the ones who have the least fear of them. Our law, while it requires that a man shall be qualified before he can make use of such dangerous agents, is seldom if ever enforced, and consequently "upstarts," and quacks who never saw the inside of a *materia medica*, much less a human body, are using anæsthetics in a manner to make a surgeon shudder, and when a death occurs at their hands then the hue and cry is raised all over the land that the dentists ought to be prohibited from using anæsthetics, and I don't know but that it would be a good idea if *some* dentists could be prohibited from using these agents. At any rate it is well for us to study over this question and be on the safe side by remembering that little word, "caution."

FIXATION OF THE JAW — CASE OF OLD STANDING CURED BY OPERATION.

BY DR. S. C. CAMPBELL, ENGLAND.

D. M'I., aged 28 years, from Iverness shire, was first seen on 21st June, 1888, and complained of inability to open the jaws.

History.—Family history is good: has several brothers and sisters, all strong and well built.

Patient himself up to the age of 6 years was healthy, had perfect movement of the lower jaw, and no deformity had been

noticed. At that age, while playing in the farmyard, a cart, partly filled with stones, fell, and the shaft struck him on the right side of the face; he was picked up insensible, and was bleeding from both ears and nose, and also from a wound on the chin. He remained insensible for several days, and was taken 20 miles to see a surgeon, and only came to his senses in the consulting-room. The jaw was said to be broken, and a bandage applied.

At the end of six weeks the bandage was taken off; the jaws were found firmly closed, and have remained so ever since—viz., 22 years.

Present Condition.—Patient is sparsely nourished and anæmic; he suffered much from dyspepsia, and has to be careful in the selection of food, which is mainly fluid. On looking at the face one is struck by the great want of development of the lower jaw, and the want of definition of the chin.

On examination, the jaws are found to be firmly closed, the molar teeth being in close apposition, while the incisor teeth of the lower jaw, which stand very considerably forward, are behind the incisors of the upper jaw, so that on looking from the front the teeth are seen to overlap. The left middle incisor tooth is absent, and through the space thus left the patient used to rub through what little solid food he took.

When asked to close the jaws, the masseters are strongly contracted, and a barely perceptible amount of movement takes place, apparently freer on the left side; no movement can be made out at either articulation.

Considering his condition, the patient speaks very well, and makes himself perfectly intelligible.

The patient has right-sided facial paralysis, which has existed since the accident.

The hearing is normal on the left side (20-inch watch test); while on the right, there is a degree of deafness (8 inch by watch).

The arrest of development of the jaw appears to be much more marked in the body than in the ramus; and each angle is prolonged downwards, as a peculiar spine-like projection.

Diagnosis.—The condition was diagnosed as—Closure of the jaws dependent on fibrous or osseous ankylosis of the right temporomaxillary joint, and possibly also of the left.

Treatment.—In the first instance an attempt was made to

force the jaws gradually apart, by means of boxwood wedges inserted between the molar teeth, on each side alternately; with the smallest amount of success; the process, however, became so painful that it had to be given up.

On the 12th July the patient was put under chloroform, and an attempt made, by means of two screw gags, to force the jaws asunder, without result, beyond demonstrating a slight degree of mobility of the left side of the jaw. The patient was then advised to submit to operation, and Professor Dunlop of the Royal Infirmary kindly undertook the case.

Dr. Dunlop, judging that the fixity probably depended more on the right joint, determined to operate on this first, and, if necessary, subsequently to attack the left.

On Christmas day, the side of the cheek having been shaved and the patient chloroformed, Dr. Dunlop made a curved incision, extending from a point a little external to the margin of the orbit downwards and backwards, parallel to the lower border of the zygomatic arch for a short distance, then directly downwards over the ramus of the jaw for about an inch; the temporal artery was thus avoided. The incision was carried down to the bone. On clearing this it was found that there was no demarcation between the jaw and the temporal bone. The parts corresponding to the zygomatic arch, the condyle and the coronoid process, were all fused into a mass of dense ivory-like bone. The posterior border of the ramus was then defined, and the parts representing the condyle and coronoid process were chipped away with the chisel, until a gap of about $\frac{1}{4}$ in. was left between the skull and ramus of the jaw.

Smart hæmorrhage took place at this stage from the depth of the wound, but was arrested by means of a plug of lint dipped in solution of perchloride of iron. The jaws were now forced apart with considerable difficulty, but with a gratifying amount of success, as they separated to the extent of fully one inch. A cork was inserted between the teeth, and the wound dressed.

The subsequent course of the case was as follows:—The wound was dressed on the third day, and, subsequently every few days, and gradually healed by granulation. After the third day the cork was replaced by a wooden wedge, and the patient was directed to work the jaw both by means of his hands and unaided muscular effort. After the twelfth day the patient was

furnished with a thick piece of india-rubber, which he wore between the molar teeth, and was directed to practice chewing this.

The following was the condition of the patient as noted 11th March :—The external wound is almost healed ; the patient can separate the jaw three-quarters of an inch unaided, and by means of his fingers to fully an inch. He has good power over the jaw, and can crack nuts between the molar teeth. He eats solid food of any kind, and performs the movements of chewing very satisfactory. He expresses himself as delighted with the result.

THE PATHOLOGY OF ACTINO-MYCOSIS.

BY JOSEPH ABBOTT, L.D.S., EXETER.

As THIS is a disease which bears directly upon dental surgery, or at all events should possess great interest for students and practitioners of dentistry, I will endeavor to give a more succinct and extended account of it than is generally to be found in dental text books.

Actino mycosis is a disease which attacks cattle, notably cows and pigs, and is to be found in the form of nodular tubercles in the lungs of calves. The primary lesion occurs in the jaw, and in eighteen cases out of twenty in the lower jaw. Like Equina it is communicable to man, and it is considered an ailment of a very fatal character.

This disorder is characterized by the formation of tumors in the mandible very much resembling giant celled Sarcomas, within which is disseminated, constantly increasing spores of the Antinomycetes or ray fungi.

Taking all the morbid elements present in Actina-Mycosis a pathological observer cannot fail to notice that he has clearly before him all the symptoms diagnostic of chronic inflammation, for when the disease is somewhat advanced there will be seen surrounding masses of fungi, many giant cells and external to them epithelial and granulation cells. Upon dividing the tubercles the section exhibits a porous appearance, and upon pressure a light-colored, pultaceous material exudes, containing fat cells, and light chrome-colored granules.

In the human being the symptoms are well marked and very

characteristic. They commence essentially in the lower jaw, within, or in the vicinity of a carious tooth, or the first evidence of the attack may be instanced by the exudation of pus from the socket of a recently extracted tooth.

Starting from its local origin, the fungoid growth extends to the cervical spine, giving rise to abscesses, or inflammation of the dorsal or lumbar spinous processes, culminating in caries of those structures conjointly with the formation of sinuses. Secondary deposits in the heart, liver, lungs and kidneys tend to a fatal termination, which, as a rule, happens within a year from the onset.

1. That this disease is directly caused by the presence of a parasite fungus, eutophyte, or to put it more scientifically, a hyphomycetous fungus, there can be very little doubt, and it is only to be regretted that the exact botanical classification of the mould has not so far been cleared up. It is commonly called the *Actinomyces*, or ray fungus. The natural history of all cryptogamous growths or vegetable fungi is more interesting, and I will briefly describe the nature of those to which I have applied the term hyphomycetous.

All the vegetable parasites which play such an active part in the degeneration of either healthy or morbid tissues are denominated *Thallophytes*, a term referred to plants in which as regards a relation between stem and leaf no precise differentiation can be demonstrated, and moreover *chlorenchym*, *i.e.* the green coloring matter of plants, which appears in a granular floating form in the floating contents of cells, and only developed under the influence of light, and presence of iron—is conspicuous only by its absence. The pathogenic fungi are

1. Bacteria or *Schizomycetes*.
2. Yeasts or *Blastomycetes*.
3. Moulds or *Hyphomycetes*.

Now it is with the last we have to deal upon the present occasion.

Hyphæ or moulds, are made up of filaments produced by means of a conical cell which shoots forth, and separates by fission transversely. The thallus or frond may consist of a single filament, but usually the *hyphæ* are multiple. All spring from a germinal tube which grows directly from a germinating spore.

As before stated in connection with the infective process in

Actino-mycosis, the fungus spreads by spore formation, or reproduction, this latter may be either a-sexual or sexual. How reproduction by both methods is accomplished may be understood from what follows. A-sexual reproduction occurs thus:

I. Hyphæ arise from the mycelium or spawn, and spread diversely. The terminal cells divide traverse into conidia which either form imculi, or fall away single.

II. A sporangiphore arises perpendicularly from the mycelium, and its extremity swells into a ball of protoplasm, which divide and forms conidia.

III. From the surface of an excrescence on the end of a conidiophore sterigmatu sprout, and a new chain of spores is thus formed.

Sexual reproduction takes place by conjugation and fertilization. The apical cells of two hypæ meet end to end and form a zygosporé; from this a sporangiphore sprouts, and from its conidia new plants grow; or the end of a hypha becomes of a spiral form until its threads, pressing closely upon one another, form an ascogonium, or a continuous tube; or certain cells form an organ termed an oogonium, in which oospheres, *i. e.* female reproductive organs, single or multiple are formed, while other cells form an antheridium, or male organ, in which spermatozoids are developed. The oosphere, which is hundreds of times larger than the spermatozoids, remains in the oogonium and fertilizes there. It is now called an oospore, which either develops a new plant or forms cells.

The food of moulds is oxygen; they can develop with or without light, and they flourish luxuriantly at a temperature of 37.5°. The spores are as resistant to external influences as bacteria.

Glancing, therefore, at the lives of these moulds, one would naturally imagine that they would have little chance of damaging healthy vital tissues, and it is so; but this is a statement which must be qualified, for when the actino-mycetes or ray fungus is acquired by infection from cows, &c., the moment inflammation starts, all the materia for secondary and ever-increasing inflammations are exhibited. You have suppuration containing fungus mycelia in its pus. You have it in the jaw, in the cervical glands, jugular veins, heart, lungs, liver, kidneys and intestines. Truly an appalling disease to combat. And how will you combat it? This

is the inevitable question which presents itself as an extreme and important finality to a physician who having brought all his anatomy, physiology, pathology and other scientific knowledge to bear upon a case; who having put two and two together, and sagely, as a man of experience, has fixed his diagnosis, pauses; indeed, very often! and asks himself the question. What shall I give? Be the case simple or serious, his pause should not be long, for one of the most important acquirements of the physician is to have his therapeutical index and his pharmako-dynamical lore, where? Oh, *Æsculapius!* but upon his finger tips. But when he faces *Actino-mycosis*, well may he exclaim "*Cui bono,*" unless he makes up his mind instantly to excise the jaw primarily affected. Let him when dealing with *Actino-mycosis* remember the lines in Ovid

Principiis obsta, sero medicina paratur
Quum mala, per longus convaluere moras.

and act upon the injunction therein conveyed.

The treatment I would adopt, I have just set forth, but there are other forms of treatment advocated. The exhibition of arsenic, strychnine, wine, brandy, bark, and the thousand and one medicaments denominated "tonics." They may be used as accessories, but they will not cure *Actino-mycosis*. One hint may be useful. Do *not* use peroxide of hydrogen as moulds exist upon oxygen!!!

In conclusion, I now proceed to enumerate those antiseptic lotions and injections used as palliatives, but if there is any one thing more certain than another with respect to *Actino-mycosis*, it is this, That when the primary lesion in the jaw is seen early, excision is the only hope for the life of the patient, and it *has* been successful.

ANTISEPTICS.

Efficient power thereof in solutions of distilled water.

| | | | |
|-------------------|----------|--------------------|-------|
| Mercuric Chloride | 1-20,000 | Salicylate of Soda | 1-250 |
| Thymol | 1-2,000 | Carbolic Acid | 1-200 |
| Benzoate of Soda | 1-,2000 | Quinine | 1-200 |
| Creosote | 1-1,000 | Cupric Sulphate | 1-173 |
| Benzoic Acid | 1-1,000 | Boracic Acid | 1-133 |
| Salicylic Acid | 1-966 | Zinc Sulphate | 1-50 |
| Eucalyptol | 1-665 | Alcohol | 1-50 |

THE ELECTRIC LIGHT AS A MEANS OF DIAGNOSIS IN EMPYEMA OF THE ANTRUM.

BY THEODORE HERYUG, DIRECTOR OF THE LARYNGOLOGICAL SECTION OF
ST. ROCHUS HOSPITAL, IN WARSAW.

“THE diagnosis of diseased condition of the antrum of Highmore, more especially of accumulations of pus, has hitherto been very difficult in the majority of cases. Every observer must have met instances in which he was long in doubt as to the diagnosis, and judging from my present experience I must acknowledge that I must have often failed to diagnose cases of empyema.”

With these words so boldly expressed Moritz Schmidt begins his paper on the diagnosis and treatment of affections of the antrum. I fully agree with every word of this statement. In former days I was often in doubt as to whether I was dealing with a case of disease of the antrum or of the sphenoidal sinus, and I scarcely find twelve cases entered in my medical journal since 1874, as positive examples of empyema of the antrum. Within the last six months I have collected ten cases of the kind, in each of which a positive diagnosis has been arrived at by the use of the electric light.

As early as 1882, Hartmann published valuable examples of diseases of the neighbouring cavities, and explained the relation of supraorbital neuralgia, the influence of the hindrance to the flow of secretions from the middle nasal molars; he also ascertained the full importance of Politzer's method of compressing the air in the nose and its value as a method of diagnosis. In a later publication in Freiburg, Hartmann exposed his method of washing out the antrum through the maxilla, by means of an appropriate cannula. In this way he had been able to effect a cure in cases which had proved rebellious to every other form of treatment. A host of publications on the same subject followed in rapid succession. The fact of so little importance having been attached to them must, as Krieg remarks, be ascribed to the value which the old classical symptoms, namely, expansion of the antrum, increased flow on lying on the opposite side, pain in the infraorbital region, inflammatory swelling of the soft parts of the

cheek, are still supposed to possess. Ziem deserves the full credit of having showed that with the exception of the frequent recurrence of pain, these symptoms do not necessarily belong to empyema, but may also occur with cysts and new growths. He, it was also, who first drew attention to the importance of sundry symptoms which had hitherto been overlooked, such as the unilateral and periodical character of the purulent flow. The diagnosis, however, still remains a matter of difficulty in many cases, notwithstanding the use of the plan first recommended by Bayer and then by Frankel of making the patient lie on his stomach with his head overhanging.

The exploratory puncture or aspiration of the antrum may certainly be looked upon as an important step in advance in the diagnosis of empyema. It demands, however, special manoeuvres, and may be attended with great difficulty if the osseous walls be at all thickened, as in the cases of special deformities of the lower nasal passage. If the cavity of the antrum is very much deepened and it contains but a small quantity of thick flaky pus, it will not always be easy to aspirate because the cannula is very apt to get blocked. Though personally I am quite certain that this slight operation is unattended with risk of any kind, there can be no question that many patients would shrink from it and refuse to submit to it.

Under these circumstances it was very desirable to have some painless method of diagnosis. Such a one is to be found in the method quite recently introduced by Voltolini, *i. e.*, of translucent lightning. I have tried the method in ten cases and can fully recommend it, and on the 19th February I gave a demonstration of the process at a meeting of the Medical Society at Warsaw.

The merit of having introduced this method of diagnosis unquestionably belongs to Voltolini, who has thus improved upon Czernak's idea of transillumination of the larynx. He hit upon the plan of using one of Edison's incandescent lamps instead of direct sunlight, and at once tried the process for the illumination of the nose, the palate, and the antrum.

In a paper read at Breslau, last year, Voltolini gave an account of the diagnostic value of the method of transillumination, and showed the instruments he had devised for the purpose.

Very few observers have hitherto shared his views on the

subject and even now it is very likely to meet with a deal of opposition. Gerhard and Stork both acknowledged that the process could be carried out, while Semoleder went so far as to deny even this. Furck makes no mention of it. Schrotter in his recent works calls it elegant child's play.

Hardly anyone has hitherto given the method a practical trial.

Voltolini expresses himself as follows concerning the illumination of the antrum. The facial bones can also be seen through by means of a small incandescent lamp. For this purpose I place the lamp in the patient's mouth, taking care, however, to wrap up the metallic parts with a towel so as to prevent the patient feeling an electric shock if he touches it with his lips. If the lamp is now lighted the whole of the face as far as the orbits becomes translucent.

In the appendix to his work on diseases of the nose (1888) Voltolini says: "This method of translucent illumination may also be of great service in cases of tumors of the antrum. As I am writing this a very unusual case presents itself to my mind and I think I cannot do better than to relate it."

A young man, aged 22, had been suffering for some years with a tumour of the left side of the jaw which went on increasing, and had come to form a visible swelling in the nasal cavity. The whole of the left side of the hard palate was pushed forward almost to the opening of the mouth. Voltolini diagnosed the case as one of sarcoma and advised the patient to submit to resection of the upper maxilla. As the patient would not consent to this Voltolini decided to destroy the tumour by means of electrolysis. But before doing so he tried illumination of the jaw and was not a little surprised when he found that the whole of the tumour, which could be seen in the nose was perfectly translucent.

Voltolini thus expresses himself: "I must honestly confess that I did not know what to make of this, for I had not the slightest doubt that I was dealing with a sarcoma which had arisen from some parts of the antrum and distended the walls, and that it had finally broken into the nasal cavity.

He now took an electrical fork and thrust it into the tumor and sent a powerful current through it for about five minutes. The next morning he found that the place where the fork had

been had given way; that an enormous quantity of fluid had come away from the nose, and that a large hole existed through which it was easy to see into the antrum and to pass a probe into it.

"The diagnosis was now clear. We had to deal, says Voltolini, with an empty emma or cyst of the antrum of Highmore, for after the evacuation of the pus and serous fluid the cavity was quite empty. The tumour in the nose was nothing else but the inferior turbinated bone, which had been thrust forward with the remaining portions of the walls of the antrum. It was quite clear now why the illumination of the tumor had been so very brilliant for the light passed through a fluid. Now that the antrum is empty, if I light the lamp in the patient's mouth, anyone can see even at a distance. Now far better the diseased side is illuminated than the sound one, for the left widely expanded antrum now formed a large cavity filled with air which transmitted the light far better than the small antrum on the right side. The use of this form of illumination is likely to prove of great value in the future for the diagnosis of cases of empyema and tumors of the antrum."

I have quoted the very words of the last passage, because I believe that Voltolini has not laid sufficient stress on the most important symptom of empyema, namely the fact of the diseased side remaining dark throughout the illumination, and also because he appears to mix up the symptoms of empyema with those of cysts which are quite different.

Speaking from my clinical experience I may state that while in cases of serous cysts of the antrum, both sides become illuminated (the expanded side more so than the other). On the other hand in empyema the affected side remains dark, whereas the healthy one appears red as far as the orbit, and towards the lower lid we find a brilliant sickle-shaped clear red segment reaching as far as the inner angle of the eye. This symptom is to be looked upon as a positive sign of empyema except in a few exceptional cases which I will mention by-and-by and was present in every one of my patients, so that in difficult cases it will settle the matter even in the absence of other signs which are erroneously supposed to be necessary signs of empyema.

I will now describe the method of examination as I have used it up to the present.

For the purpose of illumination I use an electric spatula as made by Reiniger in Erlangen. This has, as is well known, the shape of Furk's tongue depressor.

The small india-rubber plate can be easily removed and a small Edison's (5 volt) incandescent lamp screwed on with a proper battery this will give a clear white light, and in a well darkened room, and on this point I set the greatest importance. This is quite sufficient to obtain a powerful illumination of the cheeks and maxillary sinuses.

If the illumination is attempted with weaker currents and with lamps of two to four volts, and in an imperfectly darkened room the result will be uncertain and incomplete.

The battery (I make use of, one specially constructed by Leiter for electric lamps, which consists of ten carbonic fine cells and obtains its motive power from a solution of chromic acid and dilute sulphuric acid) should be freshly filled and six cells will then be found to be quite sufficient for Beiniger's depressor, even when they are dipped only to a quarter of their length. It is most important first to close the contact on the electric depressor, and then to dip the elements into the fluid, otherwise the filaments will almost certainly be burnt through, this will be seen at once by the lamps going out, the elements must be lowered very slowly and gradually unless the current be weakened through a rheostat.

As soon as the filament becomes red the element may further be lowered until a white light be obtained, but the tongue depressor must be placed in the mouth immediately. If too long a time is allowed to elapse the current in the battery increases too rapidly and the filaments in the lamp may be burnt.

The tongue must be firmly pushed down, depressed, the mouth closed and then contact should be made. The whole of the bony structures of the face as far as the orbit at once become illuminated equally so on both sides under normal circumstances; but if there be anything wrong with either antrum such as ectasis, atrophy or any diseased state, the difference is at once apparent.

I have already remarked that in cases of cysts containing a serous fluid the light is transmitted very freely, but in solid growths or empyema the affected side remains dark. In cases of double empyema both antra will of course remain dark, but in

such cases other symptoms, such as bi-lateral discharge will most likely be present. I have not as yet been able to detect a single case of double empyema among those that have fallen under my notice.

When the examination is over if it has taken any time, the lamp should be left in the mouth for a quarter to half a minute so that it may cool down somewhat, and so as to avoid burning the patient's lips or palate. After a little practice this will be easily avoided.

Before introducing the lamp into the mouth and trying its power of illumination I light a wax match, then I put the depressor on the tongue, and send the electric current through the lamp. If the patient has a small mouth I make him practice once or twice and forbid him to swallow so as to avoid burning the palate. In one case only did I find the bones so thick that it was impossible to light them up. In all the others it was easy to do, and without any inconvenience to the patient.

Eight or ten cells of a Stohrer's constant current battery will give a sufficient light, while twelve to fourteen cells will raise Blainsford's diaphanoscope to a white heat. Reiniger's spatula often fails when in use as the contact surfacts easily get oxydised. I have had mine coated with a thin sheet of platinum and now it never disappoints me.

After these introductory remarks on the method of carrying out the process I will now shortly prove its value in cases of empyema of the antrum of Hlighmore by means of clinical observations.

In ten cases, as I said before, I was able to diagnose positively the presence of pus, but in seven of these only was an opening made and pus let out.

Of these seven patients five were men and two women, whose ages varied between 15 and 55.

The average duration of the illness was over two years. The right side was affected in five cases and the left in two. As regards etiology in every one of them some of the upper molars or bicuspidis were diseased, either decayed or absent, small pieces of diseased fangs alone remaining. My experience confirms that of Krieg that the first molar or second premolar are usually the starting point of empyema of the antrum. I find that with a little practice it is very easy to probe the maxillary bone after

using cocaine and in the majority of cases without causing the patient any pain. The probe I use is an ordinary thin one provided with a knob, and bent at a right angle, the short arm of which must be about 8mm. long. It is introduced by means of Duplay's speculum for a distance of about two inches into the middle nasal meatus with the beak looking down. It is then rotated slightly towards the outer wall and gently drawn forward and inserted sideways into the ostium. If it finds the opening it gets hooked in.

It is easy to measure the size of the opening by gently moving the probe backwards and forwards. As a rule it is about three to four millim. wide. In one case only—one of ectasis of the antrum with swelling of the cheek—I found it impossible to introduce the probe. In this case Dr. Zawdyuski made an opening into the antrum from the canine fossa by means of a chisel and hammer, and through this I was able to introduce my finger and detect the presence of osteomata in the shape of leaflike lamella. These were removed, the antrum cleared of its serous and purulent contents, a small lamp was then introduced into the cavity which was found to be dilated to an enormous size.

It measured 5 cm. from side to side 6 cm. from before back, while the opposite side was very much smaller. After opening the maxillary bone from the canine fossa, and forcing a probe through the thickened mucous covering the cavity was thoroughly syringed out and the fluid came away through the nose. A tampon of iodoformed gauze was inserted together with a drainage tube and in a fortnight a cure was obtained. In another case I was able, contrary to the opinion arrived at by Roth by deduction, to introduce a small lamp into the antrum through an opening made in the alveolus with a large trochar and to light up the whole cavity. I repeated this experiment at a meeting of the Medical Society at Warsaw. The osteum maxillare may often be displaced in a very short time by the swelling of the mucous membrane of the middle nasal meatus and turbinated bones, and in such cases the passage of a probe will be attended with more difficulty for a time, in some cases it will be rendered quite impossible for some days. This is a point which should not be lost sight of. I met with these symptoms in the case of a lady in whom I thought of widening the passage means of the galvano cautery. After washing out and disinfecting the antrum

I first thrust the instrument in a horizontal direction and burnt a slit about 1 centm. long, and from one end of this I brought the cautery downwards as far as possible so as to facilitate the flow of pus. The result of this operation was anything but satisfactory, and I had to resort to Cooper's method, *i.e.*, of extracting the second bicuspid, before I could obtain a cure.

In some cases, I have tried washing out the cavity with a catheter bent in the same way as the probe described above, but in those cases only in which the opening was wide enough to admit of the passage of the fluid by the side of the catheter. Twice I have succeeded in passing the probe through the alveolus of an extracted tooth and thrusting the end of it through the opening into the middle nasal passage.

As regards etiology I have only met with one instance in which I thought the disease could have been caused by the extension of a catarrhal process in the nose. The patient had sound teeth. In the nose close to the meatus there were mucous polypi. The affection had evidently started with a violent cold in the head.

In a second case the diseased conditions were of a more complex nature still. In addition to the nasal polypi and the empyema of the antrum I also found the ephenoidal sinus diseased, and, notwithstanding repeated washings, on pressing with the thumb pus kept welling up in the neighborhood of the opening—close to the posterior end of the middle turbinated body. After the removal of the hypertrophied end of the concho another mass of small polypi could be seen above. The flow of pus decreased after their removal and was cured by injections. This was the fourth case of pus collection in the ephenoidal sinus which has come under my notice.

In two of the cases the pus which flowed from the ostium after the antrum had been syringed in the morning, had a most offensive smell. On examining the nose I found in each of these cases more or less chronic swelling of the turbinated bodies more of the inferior than the upper. The secretion could usually be seen at the morning examination to adhere to the middle concha and to hang from this in the form of white strings or of a greenish sticky mass.

The above described case was only one in which there was very great dilatation of the cavity, in four others the canine fossa was the seat of a slight swelling. Four of my patients complained

of pains in the teeth and face, two of supraorbital neuralgia, one of violent suffering between the eyebrows, and another of periodically recurring pain in the face and back of the head, which commenced as a rule about midday. In this case, however, pressure with the probe showed that there was pus in the ephenoidal sinus in addition to the disease in the antrum. These symptoms disappeared after the removal of the fore portion of the lower turbinated body and of some small polypi hanging from the roof of the nose.

Four patients complained of toothache, and in one of those all the back teeth had been removed. Violent pain in the eyes in one instance and *musca volitantes* in another were the chief symptoms complained of. In all cases the sense of smell was impaired, in two it was altogether lost. A profuse unilateral discharge was the only symptom in one case. The second bicuspid was, however, removed, the probe entered the cavity at once and pus came away. These in the absence of all the usual symptoms, the diagnosis was settled by means of the illumination.

With regard to treatment, in one case only was Desault's called for, in all the other cases Dr. Zawdyuski was able to perforate through the socket after the extraction of a tooth or fang, or even through the toothless law by means of a trochar about 5 mm. thick. A short silver tube about 2 centim. long and 5 mm. in diameter provided with a flat plate was then introduced and fastened by means of silver wire to the neighboring teeth. I find a longer tube unpractical because if the secretion be scanty the end of the tube is above the level of the fluid. In order to avoid the entrance of food, I place a piece of india-rubber tubing about 1 centm. long on the end of the cannula, this is made so as to act as a valve and when pressed upon closes the opening of the cannula, but on the other hand it does not prevent the fluid from running out, or hinder the passage of the catheter for the purpose of washing out the cavity. The tube is left for from eight to twelve days in the fistula, and the nose is syringed out three times a day with a 5 per cent. solution of boric acid to which a small quantity of weak solution of carbolic acid has been added until the solution returns perfectly clear and the tubes are left in until the patient learns to thoroughly wash out the antrum for himself. In two cases iodol was blown into the cavity of the antrum and with good effect. A cure was obtained in five cases out of the seven, in one

there was a relapse after four weeks. One patient is still under treatment.

Mikulieg's operation could only be performed in one case, and then only after the removal by means of Schoety's knife (for cutting from behind forwards,) of an obstructive mass of cartilage springing from the septum. The result even here was unsatisfactory and an opening had to be made later on through the alveolus. I have also tried to make an opening in the lateral walls of the antrum from the lower nasal meatus by means of the galvanic cautery. I found it impossible to use Krause's trochar in any of my cases owing to the swelling and narrowing of the lower nasal meatus. All my attempts to enlarge the osseum maxillare by means of the electric spoon proved very painful and as yet have been most unsuccessful. I intend in the next case to make a trial of Mikulieg's method of opening the antrum through the lower nasal passage by means of a bistouri cache. For the present it will be enough for me to say that the illumination of the antrum can be carried out with the greatest ease and that in the majority of cases is looked upon as the most conclusive sign of empyema.

Correspondence.

"I charge you that this epistle be read."

AMERICAN DENTAL SOCIETY OF EUROPE.

EDITOR OHIO JOURNAL:—The sixteenth annual meeting of the American Dental Society of Europe has just closed after a three days' session in this city. A good attendance of members and visiting dentists were present, as the great exposition attracts all the world to Paris this year. Many scientific and learned societies have availed themselves of this great show, to meet here and discuss and consult on the many problems which affect mankind, with the idea of benefitting the world, and thereby enhancing the happiness of us who are left to battle with the problem of life. To this end the dental world wants to be at the front, and of course it was right and proper that this society, representing American dentistry in Europe, should meet there. The society was held under the presidency of Dr. W. St. George

Elliott, of London, who, we are sorry to say, is about to retire from the profession and return to the United States. This society and the profession can ill afford to lose such a good and efficient worker in the cause of science.

Prof. W. D. Miller, of Berlin, gave us, as usual, some valuable information as the result of his many experiments and investigations in the cause of science. This society, to show its appreciation of his work, has for many years voted him a sum of money to aid him in his investigations, and it is felt by all to be money well invested, as he always gives us something to think about, and something to aid us in our duty to our patients. His lecture on his investigations on the structure of the teeth of the elephant was very interesting and instructive. He showed specimens of ivory, with iron and lead balls, and spear points, imbedded in the dentine, which had been shot into the tusks while hunting them, and had doubtless remained imbedded there for many years during the life of the animal. When there had encroached on or near the pulp, Nature had thrown out a covering of dentine to protect the pulp, completely surrounding it with a thick layer of dentine, so it could do no further harm towards inflaming and destroying the pulp. He also showed some beautifully prepared specimens of decayed dentine, and by the aid of the magic lantern he showed them upon a canvas in a greatly magnified form, so that it was plain to see in what manner and to what extent dental decay is aggravated and increased by the presence of *leptothrix* or *bacterum lactis*. He also showed some plates of glass on which he had placed gold, and the different preparations we use for filling teeth and had subjected them to treatment similar to what they would undergo in a month where decay was taking place, and he found that the copper amalgam was little, if any, effected by the formation of acids due to the presence of bacteria, while all the other materials did show their presence. As we had a stenographic reporter present, I hope we may have a more minute report of what he said than can be gathered by following a speaker in the ordinary manner.

Dr. William Sachs, of Breslan, Germany, read a very interesting paper on the different operations which we are called upon to perform on the natural teeth. He showed an upper and lower jaw with all the teeth intact, and he had performed an operation on each tooth, differing in each case, and showing very well and

ingeniously how every operation should or could be made. The paper and the exhibit were very well received, and appreciated by all present. Many other papers were read and discussed, and many new appliances and instruments were shown and explained.

Dr. Bonwill, of Philadelphia, was present and contributed very much to the interest of the meeting by what he said in the discussions and the many new things he exhibited.

The next meeting will be held in Heidleburg in August, 1891. No meeting is to be held next year, as many of the members desire to attend the Medical Congress, to be held in Berlin the coming year.

The meeting closed with a banquet on the Eiffel tower in the evening, where the members and invited guests showed what teeth are made for, and in that high altitude lingered over the *remains* and drank to each other's health (which, if kept up, would leave no health to drink to), and viewed this splendid city, glittering in all its wide expanse, with the millions of gas and electric lights, a view once seen will never be forgotten.

PARIS Aug. 8, 1889.

N. W. WILLIAMS.

LETTER FROM ENGLAND.

DR. WATT—*Dear Sir*:—I may have passed entirely from your recollection since my introduction to you by Dr. J. Taft at a meeting of the Ohio State Dental Society about twelve years ago.

I then heard you lecture upon the acid theory of dental decay. From that day to this I have found no cause to doubt but your theory as then explained was not only logical, but correct. Since then we have had theories and theories advanced, but they, to my mind, have lacked consecutiveness of detail, the thread, here or there has been broken, requiring a bridge of imagination to fill up very important links that would have stood closer scrutiny had they been based upon more tangible foundations. As a careful investigator of this interesting subject, I think some word from you, as to Dr. Miller's late statements and supposed discoveries would not come amiss. One thing that puzzles me not a little is the statement that these micro-organisms natural breeding grounds being in ptyalinized starch, or in other words,

sugar, that has verged upon or entered into a state of fermentation, resulting in the natural(?) ferment, lactic acid. I fail to understand how this really organic acid can be transformed into a mineral or inorganic acid, as your tests and deductions demonstrate that the resultant debris of dental decay give the definite reactions of HNO_3 in the nitrates, HCl in the chlorides, and H_2SO_4 in the sulphides and sulphates, and necessarily indicate it must do. There seems to be an important factor omitted by the microscopists in their "culture" processes; the combative power of vital force and action is necessarily wanting in all their experimentation, consequently an element that must greatly modify their conclusions is absent in their case, whereas in chemical experiments this element is quite inessential, enabled as we are by our present knowledge of chemical science, that cause and effect, or *visé versa*, are quite as accurately demonstrable as that "two and two make four."

With microscopists how different it is (and it seems to me it is nearly unavoidable), that two men searching in the same domain should see things somewhat differently, or one fail to detect what another may speak very positively of. Nasmyth's membrane is an instance of the divergence opinions may take, and that too between equally honest investigators; and later, the difference as to the subsequent conditions of teeth that have been implanted. This unreliable element of investigations is necessarily eliminated from chemical deductions, owing to the inexorable nature of its laws.

That these micro-organisms possess inherent capacity for producing definite acids that cause the destruction of dental tissue, I think is quite open to doubt, and that the acid existed prior, instead of subsequent to their development, is probably nearer correct. A fact that seems to have been lost sight of is that the tooth—by way of illustration—is a battle ground between vital forces and disintegrating conditions, the result of this clashing of forces the tooth may be partially resolved into its constituent elements, and these micro-organisms are one of the incidental sequelæ of the battle, incidental to and not provocative of the cause, and to be looked upon more as a dental buzzard and jackal.

I have not written this with a view to publication, but merely to get your opinion as to the trend of my remarks, *i. e.*,

whether I am right or wrong. Should you consider any of these remarks worth a place in the OHIO JOURNAL OF DENTAL SCIENCE, please arrange them a little as they at present are a trifle crude.

Hoping you are well, and that you may long be spared to fill your present position, I remain yours truly,

W. MITCHELL.

BOSTON DENTAL COLLEGE.

ON the first of November the College takes possession of its new home. The building at the corner of Fremont and Clarendon streets, has been secured on a long lease and fitted for the accommodations of the College. The ground store is occupied by stores. The first floor, as all the other floors, is lighted from three sides. The first floor will be used as an operating room. It has fourteen windows, and will furnish room for about thirty chairs. The next floor will be used for the mechanical laboratory and will accommodate about forty students at one time. The third floor is divided so as to give three lecture rooms with seats in each for forty students. A dissecting room, an apparatus room and a room for the library. The college enters its twenty-third year with very bright prospects. S.

Editor's Specials.

"Write the Vision and make it plain."

READ THIS CAREFULLY.

PROSPECTUS FOR 1890.

WE have, in the past, endeavored to keep THE OHIO JOURNAL in the front ranks of dental journalism and how well we have succeeded we leave to the judgment of our readers. The coming volume, however, promises to be one of special interest and worth as will be readily seen from the proposed additions.

The GENERAL CONTRIBUTIONS will be from the pens of well known dentists, and of as practical a nature as possible. We have arranged also for from one to two contributions each month from noted dentists of Europe.

SOCIETIES will be fairly reported and the most interesting portions presented.

A NEW DEPARTMENT OF PROSTHETIC DENTISTRY INCLUDING CROWN AND BRIDGE-WORK will be instituted. This department will contain original articles, selections, and questions and answers bearing upon this subject. Contributions for this department are expected from Prof. W. H. Dorrance, of Michigan University, Prof. L. P. Haskell, Chicago, Prof. T. H. Chandler, Harvard University, Prof. S. H. Guilford, Philadelphia Dental College, Prof. J. K. Knight, Boston Dental College, Prof. G. Mollyneaux, of Ohio Dental College, Prof. C. L. Goddard, of University of California, Prof. N. S. Hoff, University of Michigan, Prof. J. H. Lewis, of Columbian University, Dr. David Genese, of Baltimore, Md., and others of ability who have made this branch a special study. An opportunity will be afforded our readers to make whatever inquiries they choose regarding this subject, and answers will be made by the best men in the profession.

COMPILATIONS will be made from the various dental and medical journals. These will be mostly practical articles, a number to be translated from the French Journals, exclusively for THE OHIO JOURNAL.

EDITORIALS will be upon current topics of the day, etc., etc.

The Department, WHAT WE SEE AND HEAR will be conducted as in the past, and all the best ideas presented to the profession, will be given in brief and concise form.

SOCIETY notices will be made from time to time, to keep our readers posted as to time of occurrence of meetings, and such other announcements made as will be of interest to the profession.

The AFTERMATH will contain personal and other items of a miscellaneous character.

Thus it will be seen that the Volume of 1890 will be specially interesting and worth many times the subscription price of only \$2.00.

IMPORTANT.

As most of our subscribers have requested us to send THE OHIO JOURNAL to their address until forbid, we will continue sending THE JOURNAL to all unless otherwise notified. Should there be any of our subscribers who, from any cause, desire to have the

JOURNAL discontinued they will do us a special favor by so notifying us.

Our subscribers should also bear in mind that it costs a great amount of money to issue a journal, and we kindly ask them to be as prompt as convenient, in remitting us the amount of subscription, which is only \$2.00.

PROFESSIONAL SACRIFICES OF EARLY DAYS.

PROFESSOR L. D. SHEPARD, in a brief "History of the Dental Department of Harvard University," among other good things, says this: "With the exception of certain subordinate assistants, who could not afford to do otherwise, and some small salaries in recent years, the gentlemen who have devoted so much of their time and labor to the school have done so gratuitously."

It is, perhaps, safe to say, that all who held professorships in dental colleges in the early days of these institutions, made heavy financial sacrifices in doing so. We are more familiar with the struggles of the Ohio College than with others. In speaking of it we can tell of things we saw, and part of which we were. In those days the income from fees was not large, while the expenses were not small. An early professor of mechanical dentistry, who resided in an adjacent State, left his practice and the comforts of home, and devoted the afternoons of the entire session to the interests of the class, and his dividend, at the close of one session, amounted to sixty-two cents, his board and laundry bills, traveling and incidental expenses to be paid out of this, or from his private resources. Year after year he labored faithfully in this position, the pay being but little better than in the year specially detailed. The effort killed him.

The professors who resided in the city may have received incidental benefit through the influence of the official positions. Parties removing to the city would consult their family dentists as to what dentists they should select in the city, and in the absence of personal acquaintance, a college professor was likely to be recommended.

But a professorship was worse than nothing as an advertising dodge to one outside of the city. Let an actual incident illustrate: The writer of this had held the chair of Chemistry in

the Ohio College a dozen years when he overheard a conversation among a group of his neighbors something like the following: Why does Dr. W. go to Cincinnati every week? Oh, he is attending lectures in the dental college. Why does it take him so long to get through? I think Dr. ——— graduated in one or two years, and he's been going for eight or ten. Don't know, but I reckon he is going to make it with his perseverance. Thus, in addition to the necessary loss of time, many failed to patronize our office, fearing they would not find us; and others didn't like to trust themselves to a student not yet through his course of study. We take for granted that our connection with the Ohio College was held at a financial sacrifice of not less than two thousand dollars a year.

We feel that the profession of the present day ought to know, if they can, something of the trials involved in bringing dental surgery up to its present standing. But how can they know, if no one tells?

In these lines it is not intended to disparage the commendations bestowed by Dr. Shepard on the early dental professors of Harvard. The reverse is desired. They had, and have our full sympathy—sympathy from one who knows how to sympathize.

Just before the holidays in 1853 we met the late Geo. W. Keely, of precious memory, for the first time. After indulging in some pleasant conversation for a few minutes, he asked if it paid to leave a practice and spend the time in teaching in the college, or is it all done for glory? We replied that there was no money in it, less glory, and sneers and curses for thanks. But remember when David's big brother was scolding him for coming to the battle, he replied, "Is there not a cause?" And it is now well known that Dr. Keely recognized that cause, and was ever ready to sacrifice in its behalf.

It is not proper, perhaps, to give names of these heroes of self-sacrifice to whom we are indebted for our standing as a profession. The readers can each make out a list for himself. The night before the fort was to be stormed, it is said of the soldiers,

"They sang of love and not of fame—
 'Forgot was Britain's glory;
 Each thought him of a different name,
 But all sang *Annie Laurie*."

Descriptions of character are sometimes accentuated by indi-

viduality. So if the JOURNAL sets forth an individual case, its description will, with little or no variation, fit a dozen or more of similar character, and the reader can easily put in his own mental hero, as the soldier put in his own "Annie Laurie"; and he will realize the aptness of the delineation. Among many alike we select one who, for fifteen or twenty years, gave, gratuitously, two-thirds of his time and talents to the profession and the public without the slightest expectation of reward, and much of this time he conducted costly experiments at his own expense, involving, in many cases, the hiring of assistants and the buying of costly materials and appliances.

In very many of these cases, the sacrifices were made before proper provision had been made for the families concerned. This was unfortunate, if not wrong. One that we know reasoned that his family was small, and not at all extravagant, but rather economical. It would take but a few years to lay up for such a family, so he would elucidate and make practical some pressing scientific truths, and the profession and his fellow beings would be in the full enjoyment of the resulting blessings while he would acquire and lay by a competency for his family.

The trouble with such calculations is that they leave out accidents, sickness, war and other misfortunes, which make the laying up impracticable or impossible. Of course it is a pleasure to him to see the profession and the public benefited by his early researches and sacrifices, but his dependent family is not fed and clothed by such pleasure; and now in his helplessness he "sees where he missed it."

The JOURNAL rejoices to see that this self-sacrificing spirit in our profession is not dead, nor even asleep, and we have no disposition to discourage it, but would like to see it so regulated that individual and family rights are not sacrificed to professional or public welfare. Let common sense and prudence have due weight here as elsewhere. No man should be unjust to his family for sake of advancing science; and no man should be merely a dead weight on the car of professional progress. No passengers—all crew—on board this vehicle, should be the motto. There is no room for deadheads or dudes, even though they impart gentility of appearance on the voyage. Fisherman's rules should be rigidly enforced: "Fish, cut bait, or go over-board."

The self-sacrificing zeal of the pioneer leaders has had much to do in causing the wonderful and unparalleled progress of the dental profession. Energy is contagious. Let a man have his whole soul and spirit overcharged with a practical idea, and he "slops over." (Thanks to *slang* for giving us a phrase so expressive). And all within the sphere of his influence are stimulated to action. Zealous, intelligent leaders, with industrious and faithful followers, insure progress, and hence our progress has been phenomenal.

Slight efforts have been made, in a few instances, by the profession, to relieve the wronged families of some of those early sacrifices, but practically they have amounted to but little. But such failures do not warrant us in charging the profession with a lack of generosity. Men are naturally benevolent, and dentists are not exceptions. A. never saw B. in want, without wishing that C., his next neighbor beyond, would help him; but C. has made some investments in the neighborhood of D. and E., and it requires all his means to develop them. So, if A. will give B. a little incidental help, till C. gets through his crisis, he will lead off in an effort to build him up. But B. quietly starves between A. and C., who have been made prosperous by his good advice and useful inventions, freely bestowed, whether thankfully used or not.

It has been ever thus; and though we, by no means advocate selfishness, yet we advise all concerned to see that those rightfully dependent on them, are insured against want, before devoting the bulk of their time and talents to the public. Till such security is gained, our time and talents are not our own individual property, but belong to the assets of the family.

THE ETIOLOGY OF CARIES—MORE ABOUT IT.

Nor long ago the editor of *The Southern Dental Journal*, with a kindness that is "Catching," and which ought to be *contagious*, sent us an advance proof-sheet of an article about to appear in his *Journal*, and labeled, "Compliments of the editor—use as you please," and the article was entitled "Etiology of Caries, by W. C. WARDLAW, M.D., D.D.S."

The article was promptly read with pleasure, and, we trust,

with profit. Our first impulse was to republish it in the *OHIO JOURNAL*, but, as things existed, we could not do so and be approximately on time, as our progressive number was already about full. The article is good and quite readable, and is having a wide circulation.

While not wishing to spare the space, at this late day, which it would require, yet we propose to make a bulky quotation from it, partly for the information of our readers, and partly because we wish to notice some of the thoughts set forth in the quotation. It is as follows :

“One recent theory, however, the most plausible and most generally accepted, was that of Dr. Geo. Watt, of Xenia, Ohio, who made the mineral acids to do the work of destruction in the dental organs. The action of these acids upon the lime-salts of the teeth, decalcifying them, seemed to be a scientific explanation of the breaking down of the form and substance of the teeth. But it did not fulfill all of the requirements of the case, and left some of the phenomena of caries unexplained. The principal difficulty in the way, was to supply the acids in sufficient quantities and intensity, at the spot of decay. Dr. Watt made labored and intelligent effort to explain the chemical action and reaction taking place in the mouth, necessary to furnish his sulphuric, hydrochloric and nitric acids, in quantities, minute it is true, but in their nascent condition, of sufficient strength. He could not, however, produce upon teeth outside of the mouth, decay, having all the characteristics of true caries. It was also urged in opposition, that if mineral acids were in the mouth, in sufficient quantities to produce caries upon, say, the approximal surface of a tooth, they would necessarily produce a perceptible effect upon other surfaces.

This theory, supported by a number of scientific facts, has much in it to commend it to general favor, but it does not go far enough. It is correct, in that it makes caries the result of chemical action, but it does not supply the right acid, the lactic.

It has been supplanted by the more recent ‘germ’ theory, to which form has been given principally by Miller, of Berlin. Some have attempted to cast ridicule upon it, by calling it the ‘bug’ theory, the ‘worm’ theory, etc., but it has ‘come to stay,’ and to my mind fulfils all the requirements of a perfect theory, and explains the hitherto obscure phenomena of caries, more sat

isfactorily than anything which preceded it. It is, in brief, this: fermentation of organic matters, in contact with the teeth, is caused by bacteria, which generate lactic acid, by which the teeth are decomposed."

Is it a slip of the pen, or is it want of thought that induces Dr. W. to use this expression? "The action of these acids upon the lime-salts of the teeth, decalcifying them," etc. Decalcifying the lime-salts, or the teeth? Let us try it on. In black decay the carbonate of lime, or calcium carbonate of the dentine is changed to calcium sulphate. The dentine is not decalcified, nor is the lime-salt. A lime-salt still is the result of the chemical action. And in black decay the bone phosphate is still calcium subphosphate. No decalcification at any stage of the process.

Then, in white decay, the organic matter of the tooth is destroyed as well as the lime-salts. The entire dentine is disintegrated as far as the morbid condition extends. But the process is something else than decalcification.

But take the most common variety of caries: The tooth substance is decalcified there. That is, the agent, whatever it may be, forms soluble compounds with the lime-salts of the tooth, while it acts scarcely, if at all, on the organic portion.

In this connection it may be proper to consider erosion, formerly called chemical abrasion. True it is not caries, but it has as much right to be so called as has any condition known as caries. Here the agent acts on both the organic and inorganic materials of dentine, forming highly soluble compounds with them. The entire tooth substance is dissolved away, as far as the morbid action extends. These processes are unlike and distinct from each other, and not one of them is truly described by the term "decalcifying."

In noticing this article, not an unkind or disrespectful thought of its author can be, for a moment, entertained. Dr. W., in referring to our early experiments, says, "He could not, however, produce upon teeth outside of the mouth, decay, having all the characteristics of true caries."

Probably not. We don't remember that we ever tried. Our experiments, in this line, were usually, and we think always, made *within*, and not *outside* of the mouth. We could not have gained respectful attention otherwise. At nearly every dental meeting of those early days, some member, looking as wise as an

owl, and as sedate as a crow, would, with voice as musical as a parrot's, remind us that chemical action out of the mouth is not necessarily the same as chemical action in it; and then he would sit down with a look of contentment, as if he had given utterance to the concentrated wisdom of the ages.

Dr. W. credits the theory that he is combatting with being "correct, in that it makes caries the result of chemical action, but it does not supply the right acid, the lactic." But while crediting lactic acid with all that it can do, we are bold to say that no one, with only lactic acid as a reagent, can produce on teeth outside or within the mouth, "all the characteristics of true caries." And this is because chemical action is definite in its nature, and it is not more strange than that we can't produce nitrate of potash and carbonate of potash, by having but one acid act on the base.

That variety of caries commonly called erosion, is readily produced by lactic acid, and so also by acetic acid, but we fail to see the possibility of their producing "black decay," or that variety in which the organic matter is left in the cavity.

Let the research go on. There is still plenty of room. We can have no interest in maintaining error. We have advocated a theory that we thought, and still think, explains the phenomena of the several varieties of dental caries. But we care nothing for the theory,—only the truth is what we seek, and let individuals and their theories stand aside when the car of truth is on the track.

Many readers of the JOURNAL know that we have been able to experiment but little since the war, in comparison with what we did before. At one time we had specimens of all the varieties of dental caries artificially produced within the mouth, and these corroborated our theory, and demonstrated that caries could be thus produced. They did not prove that it could not be produced otherwise, and we have no dispute with those who seek to produce it by other agencies, but wish them well all the time. We will not tell about those specimens being destroyed in "that fire" that some of my friends—some? no, *one* treats as a joke. We will close by stating that since we have been totally shut out from professional intercourse, we placed some chemical reagents in an artificial cavity in a tooth, still in the mouth, sealed up the cavity, and some days afterward found in the cavity well devel-

oped white decay, and free nitric acid. Before, we had found *nitrates*, but this time *nitric acid*. Go on with the experiments. This question must be settled; and it will not be settled while so-called dental caries is regarded as a unit. Rheumatism and consumption are more nearly identical than are black, and white decay.

We cordially thank Dr. Wardlaw for writing the article, and especially for his kindly notice of our theories; and we thank Dr. Catching for his courteous action in sending us an advance proof of it.

DEATH'S DOINGS.

THIS time DR. A. BERRY was called for, and we believe was ready to go, even though we were not ready to spare him. Though we all knew that he was no longer a young man, yet professionally he seemed so youthful, so energetic in his attendance on societies, so genial and cordial every way, we seldom thought of Dr. Berry's dying. But he has gone.

He died in the city of Boston, October 2nd, at 11:30 P.M. The doctor's health had not been good for awhile, and he went to the seashore, hoping to be invigorated by the bracing atmosphere of New England. But his time had come. He became seriously ill and had to stop, where, at the Hotel Eastern, he was nursed by his faithful, devoted wife to his final rest. His remains arrived at Cincinnati the evening of the 5th, and were met at the depot by personal friends and members of the Masonic order.

Cincinnati was the home of Dr. B. for, perhaps, half a century, though he sometimes spent the winters, mainly in Mississippi, where he was when the civil war began. True to the Union he, with his little family, found his way into the Union lines and returned home.

In early life Dr. B. was a student of Amherst college, and he was one of the early graduates of the Ohio College of Dental Surgery, of which he was one of the stockholders. He was one of the organizers of the Mississippi Valley Association of dentists, now the oldest dental society extant. He was an active member of the Ohio State Dental Society, of the American Dental Association, of the Mad River Valley Society, and of the Cincinnati Dental Society; and he at times held highest honors in these

societies. He was probably the oldest member of Cincinnati Lodge of F. A. M., and for over forty years was connected with the order of the Sons of Temperance. But his genial smile and cordial grasp of the hand will no more welcome us to Cincinnati. He will be missed much by professional, and more by personal friends.

The writer's acquaintance with him began in February, 1853, and has been intimate and cordial ever since. Peace to his memory. Sympathy to the lonely widow. May his manly virtues be a guide to the young in our profession.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

TEST FOR LEAKAGE.—Fill a small glass test tube with amalgam just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

COPPER AMALGAM.—It is conceded by those who have the most experience with this material, that if the filling oxides or forms a sulphide, it will preserve the tooth better than if no such action takes place.

THE SUCCESSFUL DENTIST.—The successful dentist of to day can no longer limit his powers by his fingers; the times demand a wider knowledge and higher training to guard against errors in diagnosis and treatment heretofore insufficiently recognized.

LUBRICATOR.—Oil of mustard is now being praised as a lubricator for machinery. The lubricating value is said to stand to that of olive oil in the proportion 263 to 168. It remains fluid at 7° or 8° C. below freezing point, and reduces to a minimum heat due to friction.—*L'Odontologie*.

BRIDGE-WORK.—DR. KING says: I have removed bridges that had been put on by the very best bridge-builders, and in regard to cleanliness, I have actually been obliged to hold my nose dur-

ing the removal. The odor in some cases is unbearable. Besides this, we often have peridental inflammation resulting from irritation in wearing bridges. I advocate removable bridge-work.

OPENING ROOT CANALS.—There is too much timidity in opening root canals, which should be done freely; freely does not mean carelessly, although I would rather drill through the side of a root and have to clear the remaining clogged portions by further effort, than to take chances of sealing up the canals with debris in them; and large openings are necessary to secure this result.—DR. ATKINSON.

THE EFFECTS OF AMALGAM FILLINGS.—I had a patient that came to me ten or twelve years ago, with teeth that I could not fill with gold. I filled with amalgam, and stated that it might last three years, but how long was uncertain; these teeth are doing good service to-day, and I do not see why they should not last ten years more. I freely admit that I could not have done it with gold, but others might have done it.—DR. C. S. BUTLER, Buffalo.

THE NECESSITY FOR THOROUGH EXAMINATION.—A girl, aged nine years, came to me with severe toothache. Her teeth were all apparently sound, but in the fissures of the molars, by using the finest pointed explorers, I found I could pass them through the enamel. I took a very small bur and went through the fissure. By using progressively larger burs, I found a cavity below, as large as a small pea. Several molars are in this condition.—DR. PAGE.

TUBERCLE BACILLUS.—I have very good authority for saying that diseased roots and teeth have a great deal to do in starting tubercular trouble in the lymphatic glands of people predisposed to this disease. Tubercle bacilli gaining admission to the jaw through the diseased teeth, speedily infect the structures in their neighborhood. It would be right, therefore, for us to look well to the teeth of patients having a tubercular tendency, and see that they keep their mouth in a thoroughly healthy and aseptic condition.—G. W. WATSON.

MIXING AMALGAM.—When copper amalgam fails to work, apparently on account of dryness, do not add more mercury, but

use lots of friction, and you will generally get it sufficiently plastic to work smoothly; and it should always be worked so that, when it is placed in the cavity, it will burnish off smooth, not granular. After a few trials, you will at once recognize the degree of plasticity necessary to insure this result. I have found that it is best, if possible, to so leave the filling that it will need but little, if any, polishing or grinding.—DR. OSMUN.

MIXING AMALGAM.—There has been two or three methods of mixing amalgam filling. Some are of opinion that it is best to squeeze out the excess of mercury, others of a contrary opinion. For my own part I have adopted a plan. After I mix my amalgam soft, I squeeze out sufficient mercury between my thumb and finger. Then I take one-third of the mass for present use, and the remaining portion I squeeze perfectly dry. The first third I introduce first, then the dry mass, and with a small bur-nisher I complete my filling.—DR. OLIVER.

RETAINING APPLIANCE.—I have seen more trouble from retaining-plates than irregularities themselves; and if we can make fixed retaining appliances which will be cleanly, and at the same, fixed,—so the patient cannot remove them,—we will succeed much better. There is one little device which, so far as I know, is original with myself, and has proved of great value in retaining overlapping centrals after regulating: It consists of a little gold bar from one-eighth to three-sixteenths of an inch long. It is applied with oxyphosphate cement, and is a very simple and effective appliance. I have a case of four front teeth overlapping and out of line, and they are retained by this band alone.—DR. H. A. BAKER.

INCOMBUSTIBLE CELLULOID.—It is well known that the commercial value of celluloid is greatly lessened by the fact of its easy inflammability, which has repeatedly given rise to serious accidents. A process of manufacture which does away with this injurious property, at least to a considerable extent, has been devised by Stockler. His preparation is a mixture of 100 parts of gun cotton with 40 parts of camphor, and 70 parts of chloride of zinc. This is moistened with 100 parts of alcohol, and allowed to stand for 12 hours, after which it is kneaded by rollers into a homogeneous mass. This celluloid, the inventor claims, will burn.

only while in direct contact with flame, being immediately extinguished on the removal of the latter.

THE ILL EFFECTS OF MOUTH BREATHING.—I know the case of a child that has been under my care from birth. At birth and up to the third year the child had a perfectly-formed and normal arch; but it acquired the habit of breathing through its mouth. The result has been that the muscles, in the effort of holding the mouth open in that way, are drawn down over the teeth, and the arch is decreasing in width and becoming narrow, so much so that you cannot do more than place your finger in the centre of the arch; the child is now nine years of age. There has been a radical change in the shape of the mouth, and from no other reasons than mouth-breathing and the force of these muscles on the side of the mouth.—S. C. G. WATKINS.

ADAPTING BLOCK TEETH ARTISTICALLY TO THE MOUTH.—I will, if desired, show a new process of adapting the block teeth artistically to the mouth with very little expense and trouble. When I have a peculiarly shaped mouth to treat and have not blocks to meet the demands, I break up the blocks in sections. I take a block of three and break in two and just shape them on the cast as you would a single tooth—that is the ordinary gum enamel—and unite them with gum body and bake them in the furnace. You may use any kind of a furnace. I take a strip of platinum that is nearly square and as thick one way as the other, and cut some notches for my teeth and band it over my pins back of the block and solder them with pure gold. I bake them in the furnace and transfer them to the plaster block and dress them the same for rubber.—DR. COMSTOCK.

SPUNK.—Often you cannot use a napkin in the mouth of a child and some will not tolerate the rubber-dam. In such cases, on the lower jaw, let your assistant hold a piece of spunk on the lingual surface of the teeth, while you hold a smaller piece on the buccal surface. Cut your pieces; do not tear them up lest some unevenness gets into your cavity or obstructs your seeing your work. Let the lingual piece stand a trifle above the crowns of the teeth lest the child throw saliva into the cavity by swallowing.

If you are inserting amalgam fillings on buccal surfaces, use a narrow piece to keep your filling up to the cavity while you push it in. In superior proximal cavities, hold a half inch square loosely near the tooth to be filled, and place your filling material upon it and you can readily slide it into your cavities—better than amalgam cups or shooters.

Keep a lot of small cubes, size three-eighths inch more or less, to smooth off excess or to press filling in. Follow with a burnisher.—DR. A. W. FREEMAN in *Archives*.

ANTIPYRIN AS A LOCAL STYPTIC.—A French physician relates a case in which a boy of 14 suffered from persistent bleeding after the extraction of a molar tooth. Perchloride of iron was without effect, and so much blood was lost that syncope was induced. On recovery, the hemorrhage again broke out and perchloride of iron was once more tried, but vainly. The cavity was then plugged with two or three pledgets of lint steeped in solution of antipyrin. The bleeding at once permanently ceased. It was noticed that while the perchloride caused severe pain, the antipyrin was not objected to. It is suggested, not improbably, that the antipyretic action of this and similar drugs may possibly be due to the fact that they diminish the blood-supply by their astringent effect on the blood-vessels.

A SIMPLE INHALER.—DR. ERNEST E. MADDOX gives the following suggestion for making a simple inhaler, in the *Practitioner*. In it such remedies as compound tincture of benzoin, methol, and oil of eucalyptus may be used:

“Coil a piece of paper into the shape of a cigarette, and fix it with gum. Then insert into one end a small uncompressed piece of absorbent cotton-wool, upon which a drop or two of the desired medicament has been poured. Air is now drawn through the tube by the patient, who holds the other end between his lips. This plan is by many patients, especially by men, preferred to the use of any form of respirator, or to inhalations mingled with steam. These last, moreover, have a relaxing effect in some atonic conditions of the throat.”

Of a number of remedies, including menthol, inhaled in this way by a patient suffering from pulmonary phthisis, he found that oil of peppermint gave most satisfaction. A small tube of

vulcanite flattened like a cigarette-holder at one end, with a raised flange or border to be held within the lips, would doubtless, he says, answer still better; but an inhaler, which when needed can be made on the spot, has advantages of its own.

PRESERVING QUALITIES OF COPPER AMALGAM.—I have, within a day or two, examined a mouth where the teeth were of such poor organization that it would discourage any of you, should it come under your professional care. We have tried almost everything; gold, cements, alloys of different makers, gutta-percha, and all were failures; sometimes in less than six months, except the front incisors and cuspids, which were preserved by gold, some fillings as long as seven years; but the molars and bicuspid resisted every effort, and I was contemplating capping them with gold caps or crowns, when I thought, now, I will give copper amalgam a trial; and, after about twenty-eight months, I find the margins all perfect and the teeth doing well. Within the same time I have inserted a number of other alloy (silver, tin, etc.) fillings, and they have all gone to pieces; and I have now removed them and filled with the “old reliable” copper amalgam. Perhaps you will say, “Why did you fill with other amalgams during this period if you found that the teeth were being saved by the copper amalgam?” Just the reason why many of you have refrained from its use, viz., because my faithful servant was black. In fact, I stumbled on the “color line,” like some of my Southern friends.—DR. OSMUN in *Archives*.

ARTIFICIAL CROWNS WITH METAL ROOT.—Having had an eighteen months' favorable test of an artificial root and crown, I beg leave to report through the *Items*.

A lady, about 30 years of age, called to have a first superior left bicuspid inserted on a plate. As she was opposed to a plate, I examined her gum and the teeth adjoining the space as to the practicability of inserting a bridge or a tooth by the Younger method.

Finding that a bridge was not advisable, the idea came to me that a crown on a gold or platina root would be as agreeable to the alveolar tissue as another person's tooth; so I mentioned it to her, and after a thorough understanding of the operation and the uncertain results, she consented to the operation.

I fitted a Foster crown to the gum as accurately as possible. I now administered Mayo's vapor, put the crown in place, and with my engine drilled into the alveolus about a half inch; then, with a Howe tap, I cut a thread. I then removed the crown and cut the gum away where the crown pressed it. The patient recovered, and pronounced the operation "painless" to her. I then thoroughly syringed the pocket, dipped the platina screw in a 1 to 1000 solution of bichloride of mercury and screwed it home.

After thoroughly cleansing the gums I put the crown on and forced it tight to the alveolus with nut. She came back next day, as directed, and on removing the crown I found but little inflammation. I now cleaned the alveolus of the gum particles where the crown was to rest, and with gutta-percha set the crown in place and screwed home.

I have seen it several times since, and it is as firm as when first set. I have two other cases of short standing which I will report as soon as I am satisfied with the results.

In these two cases I used a much larger screw root, with apex conical shaped, and at top of the gum the screw is reduced in size to pass through a Foster crown, and to receive a nut to hold the crown; the shoulder at the top of the gum supports the crown. The crown rests on the gum hard enough to prevent food from working under it.—A. J. STEVENS.

Books and Pamphlets.

ORTHODONTIA, OR MALPOSITION OF THE HUMAN TEETH; ITS PREVENTION and REMEDY.—By S. H. Guilford, A. M., D. D. S., Prof. of Operative and Prosthetic Dentistry in the Philadelphia Dental College. Philadelphia: S. S. White Dental Mf. Co. Price, cloth, \$1.75.

This work of 186 pages is one of the series of text-books prepared for use in the various American Dental Colleges at the request of the National Association of Dental Faculties.

In the preparation of this book the author has so arranged the text as to lead the student step by step from the simplest beginnings to the more complicated and difficult work of practical treatment. He has written the book in a clear, concise and comprehensive style, something to be admired in a work of this kind. The various appliances treated of are the best yet presented to the profession and numerous enough, it seems, to fit any case of regulating that might be presented. The numerous illustrations of appliances and their adaptation add much to the value of the text. It is just the

kind of a text-book needed and students may congratulate themselves on the opportunity of securing so complete a work from so good an author.

That a better idea may be had of the contents we quote headings of chapters:

PART I.—PRINCIPLES INVOLVED. I. Definition of Subject. II. Etiology. III. Evils associated with Irregularity. IV. Advisability of Correction. V. Age at which Correction may be begun. VI. Movements to be Produced and Principles governing the Application of Force. VII. Extraction as related to Orthodontia. VIII. Physiology of Tooth-movement and character of Tissues involved.

PART II.—MATERIALS AND METHODS. I. Study of Case. II. Appliances. III. Consideration of Methods: Farrar's Method. Patrick's, Byrnes', Angle's, Coffin's, Talbot's, Magill Band.

PART III.—SPECIFIC FORMS OF IRREGULARITY AND THEIR TREATMENT. I. Incisor Teeth Emptying outside or inside the Arch. II. Delayed or Mal-Eruption of the Permanent Cuspids. III. Incisor Teeth situated outside or inside of the Arch after Dentition is Complete. IV. Cuspid Teeth situated outside or inside of the arch. V. Misplaced Bicuspids. VI. Torsion. VII. Contraction of the Arch. VIII. Protrusion of the Upper Jaw. XI. Protrusion of the Lower Jaw. X. Miscellaneous: Lack of Anterior Occlusion, Reduction of Elongation of the Anterior Teeth, Assisted Eruption of the Anterior Teeth, Tooth Shaping, Etc.

DISEASES OF THE NERVOUS SYSTEM. By Dr. J. M. Charcot, Prof. to the Faculty of Medicine, Paris, France. Translated by E. P. Hurd, M. D. Cloth, price 50 cents; paper, 25cents. Detroit: G. S. Davis, Publisher.

This book of 155 pages contains eight lectures delivered by the author and pertain for the most part, to hysteria and especially to hysteria in the male sex. Dr. Charcot has made a special study of these diseases, and the book gives the history of many interesting cases.

A TREATISE ON HYSTERIA AND EPILEPSY. By J. Leonard Corning, M. A. M. D., pp 176. Cloth, price, fifty cents. Detroit: Geo. S. Davis, Publisher.

This is also one of the Physicians Leisure Library Series, and like the others is full of interesting reading. Dr. Corning is well known as an eminent physician and able writer, and his remarks on Hysteria and Epilepsy cannot fail to interest every reader.

PULMONARY TUBERCULOSIS. Its Etiology, symptomatology and Therapeutics. By Prof. Dr. H. Von Ziemssen, Director of the Medical Clinic at Munich. Translated by D. J. Doherty, A. M., M. D. Detroit: G. S. Davis, Price, cloth, 50 cents; paper, 25 cents.

This work of 119 pages, on Tuberculosis, contains the views of one of the most eminent clinical teachers and practitioners in Europe, and is probably the most recent published utterances on the subject. The matter was originally delivered in the form of lectures to pupils, and has been faithfully translated from the German.

BRIGHT'S DISEASE OF THE KIDNEYS. By Alfred L. Loomis, M. D., L. L. D., pp 112. Detroit: G. S. Davis, Pub. Price, paper, 25 cents; cloth 50 cents. This treatise is well written and contains much valuable information upon this important subject. Dr. Loomis is one of our best authorities in the practice of medicine and that this is a valuable work goes without saying.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. A YEARLY REPORT OF THE PROGRESS OF THE GENERAL SANITARY SCIENCE THROUGHOUT THE WORLD. Edited by Charles E. Sajous, M. D., lecturer on Laryngology and Rhinology in the Jefferson Medical College, Philadelphia, etc., and seventy associate editors, assisted by over two hundred corresponding editors, collaborators, and correspondents. Illustrated with chromo-lithographs, engravings and maps. Philadelphia: F. A. Davis, Publisher. Price per five volumes, \$15.00. Sold by subscription.

The object of the Annual of the Universal Medical Science is to collate the progressive features of medical literature at large, and clinical data from countries in which no literature exists, and to present the whole once a year in a continued form, prepared by writers of known ability. That the Annual now enjoys so large a circulation is evidence of its worth. Vol. I treats of the Lungs, Pleura, Heart, Pericardium, Stomach, Liver, Pancreas, Intestines, Entozoa, Kidneys, Bladder, Fevers, Measles, Rotheln, Diphtheria, Pertussis, Mumps, Rheumatism, Gout, Diabetes, etc.

Vol. II contains the Brain and Spinal Cord, Peripheral Nervous Diseases, Mental Diseases, Inebriety, Uterus, Ovaries, Diseases of Pregnancy, Obstetrics and Puerperal Diseases, Diseases of Newborn, Dietetics of Infancy, Growth.

Vol. III. Brain Surgery, Abdominal, Genito-Urinary and Recto-Anal Surgery, Amputations, Resections, Surgical Dis. of Arteries and Veins, Fractures, Dislocations, Gunshot Wounds, Tumors, Orthopedic Surgery, Oral Surgery, Abscess, Anthrax, etc., Surgical Diseases, Surgery of Lungs, Anæsthetics, Dressings, Traumatic Neuroses.

Vol. IV Diseases of the Skin and Syphilis-Opthalmolgy, Otology, Diseases of Nose and Accessory Cavities, of Pharynx, Palate, Larynx, Œsophagus, Diseases of the Blood, of Thyroid Gland and Urinalysis.

Vol. V. Therapeutics, Experimental Therapeutics, Poisons and Medical Chemistry, Electro-Therapeutics, Climatology, Demography, Hygiene. Histology and Technology, Bacteriology, Embryology and Monstrosities, Physiology and Anatomy.

Each volume contains about 500 pages, is provided with an index and Volume V contains a most complete triple general index. The books are gotten up in tasty cloth binding, and the typographical work is excellent, reflecting much credit upon the publishers.

Our space is too limited to go into further detail, but with the large staff of able editors, correspondents, collaborators, etc., how can the work help from being one of great value?

BOOKS RECEIVED.

A TEXT-BOOK OF ANIMAL PHYSIOLOGY. By Wesley Mills, M. A., M. D., New York, D. Appleton & Co., Publishers. Price, cloth, \$5.00.

DENTAL CHEMISTRY AND METALLURGY. By Clifford Mitchell, M. D. Chicago. W. T. Keener, Publisher. Price, cloth, \$2.50.

MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS. By I. J. M. Goss, A. M., M. D. 2nd edition revised. Chicago: W. T. Keener, Publisher. Price, cloth, \$5.00.

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"A word fitly spoken is like apples of gold."—SOLOMON.

PRESIDENT'S ADDRESS.*

BY C. M. WRIGHT, D.D.S., CINCINNATI.

By invitation of your Executive Committee I have been placed in the position of a precedent breaker: for several of my distinguished predecessors have declined to offer an annual "address"—a presidential address, upon these occasions. And they were wise.

I felt so deeply the compliment paid me by the committee—my bosom was in such a hypertrophied condition with the pride which filled me to the brim, on account of the honor which I know has always surrounded this chair—my internal elation was so great when I thought of the dignity of this position, which the kind indulgence of the society permitted me to grasp this year—that my usual modesty and ordinary judgment forsook me, and I agreed to deliver an address before this honorable and dignified body to-day. An *address* is a stately affair and should abound in wisdom. An *address* should be a dignified oration. historical and advisory in its character. In it, should be pre-

* Read before the Ohio State Dental Society, at Cleveland, October, 1889.

sented comparisons of the past and present conditions of an organization, a report of the progress of the organization, or of a profession, in science, in education, in social, and other relations. An address before a State Society (the most august association of a large territory) should present in detail the movements of the entire profession of that State in its literary, its legal, and its scientific activity, at least during the past year of its existence. This, no doubt, is what was expected of me when your honorable committee tendered me the invitation. But, this is just what I do not feel capable of accomplishing in a satisfactory manner. After much thought upon the subject I went to my friends in consultation, and but one subject was offered (and this by a valued friend) which it was believed would be of interest and value to offer for your consideration; that subject was in relation to the Dental Law of the State. Its present condition, and the necessity for action on the part of this body, this winter, if we would make it more effectual, should be a matter for consideration. The law as it now exists is imperfect in some respects. Other States have much more efficient laws, and complaints are heard all over our State from members of the profession in regard to the laxity of restraint placed upon practice, and against the influx of incompetent and unqualified men who are crowding into our State, driven from the more rigid neighboring States; and this to the detriment of our position as a profession at home, and to our reputation among other States, as well as in foreign countries. Thus, as a matter of pure self-defense, prompt action should be taken in the matter, and if it is found either impractical or impossible to obtain from our legislators an entirely new law, as was tried last winter—and this I may add is not held as a real necessity—a vigorous and intelligent effort to effect such amendments to the existing law as shall make it more in accord with the demands of the times, and more effective in its practical workings, should be made.

This, it is believed, can be done this winter. These amendments should include a "registration act," which alone, if well adjusted, might be made to revivify a law which now seems to be a "dead letter." To do this is the duty of a State Society. To do this promptly and well is the duty of the hour. To do this properly and effectively is the duty of a competent committee appointed by this society, and having power to act freely for this

society, and to be compensated by this society, if compensation is necessary in any way to secure the desired object.

It would not be appropriate, I am sure, gentlemen, for me at this time to go more fully into this matter, or to attempt to analyze the law as it stands, or offer advice on the details of the required amendments. Action—immediate action, is the present necessity, if our great State is not to be left behind in the general advancement. This State, gentlemen, which has given to the profession such men as Chapin A. Harris, James Taylor, and a host of others who have distinguished themselves in the past as the founders of the dental profession in America—we of Ohio, cannot afford by any neglect on our part, to let the work of these men crumble into ruins. Ohio must not be the only State whose dental garden, if I may be permitted such an illustration, is allowed to be overrun with weeds. Weeds plucked up by the roots by the careful gardeners of other States, and thrown over the wall into our fair land, where they take root and flourish, to the infinite injury of our flower beds and lawns.

Another question of the day, which I shall take the liberty of referring to briefly, the suggestion of which presented itself to my mind in the discussion at a recent meeting of the Seventh District Dental Society of the State of Ohio, on the medical status of the dentist, and also from an editorial in the October number of the *Dental Review*, in which a dentist, or one who claims that he is only a dentist, has isolated and described a prevalent disease, which he, the writer, claims is epidemic in the ranks of the dental profession, and which he classifies as "M.D.—ism." The effect of the disease, according to this writer, are serious. It threatens to cramp the usefulness of the dental society, the dental college and the dental profession. It is claimed to be steadily on the increase in the east and west. The ætiology of the disease is shrouded in some mystery, but an hypothesis can be constructed upon modern methods. A medical micro-organism, whose exact place in the microbe kingdom is not yet definitely established, has found a lodgement in the gray matter of the dentist's nervous tissue, where it finds pabulum and consequently opportunities for growth, development, and for reproduction of its kind according to the laws of all living things. In the assimilation of this pabulum, and the metabolic changes which occur, a ptomaine results which affects the habitat or gray

tissue in which it is lodged, and the function of this important tissue is seriously interfered with—hallucinations are produced—things which before seemed right, now appear wrong; positions which before were considered honorable, now are regarded with contempt and abhorrence; names—such as dentists, or titles such as doctor of dental surgery—which, in the normal condition of the patient and before the effects of the micro-organism could be observed, were looked upon as creditable, now cause wave-like shudders to pass throughout the muscle tissue of the entire organism, the emotional symptom seeming to be a reflex nervous act, as from an opprobrious epithet applied to the patient, acting upon the terminal of a sensitive nerve. These are a few of the more prominent and characteristic symptoms. Have you studied the disease, gentlemen? And if so, have you evolved from the depths of your therapeutic knowledge a method of treatment?

That it is desirable to cure a disease of this character, I think is evident to every one of us. Dentistry is a well-known, a reputable, and a distinct profession. It has a history, a literature, and a system of special education of its own. We have, I sincerely believe, every reason to feel proud of each of these departments, and, as I have expressed before in public and in private, personally I have no sympathy with the false pride too prevalent now in our ranks, which makes a dentist, or a dentist's wife and daughters and sons sneer at the profession or at the name of the profession which has made him and them what they are. There are too many scholars in our ranks, too many scientists in our midsts for any man to feel ashamed to be ranked simply as a dentist. We have been lifted out of the mire by the efforts of noble men, whose example we want to emulate. And, if we want to look over our geneological tree, while its roots may have been planted in the medical orchard, the grafting has been so successful and the fruit of the branch of to-day is so fine that no man need reject it for the fruit of the rest of the tree.

Let Ohio dentists remain dentists and simply do the best they can to maintain the dignity, the respectability and the gentility of the profession of their choice. Every unit of the profession has this responsibility upon his shoulders. He cannot shirk it. Every noble act of his reflects honor upon the entire profession. Every ignoble act of his, trivial as it may seem in the abstract, reflects dishonor upon the entire profession. No man

can live for himself after he enters a profession. He may try to, but he cannot do it. If you gain wealth, social position, literary distinction, wide reputation for any good thing, I benefit by it my brother, try as you may to keep me from it. If you loose caste socially, if you are envious and mean, if you resort to low methods of conducting yourself or business, brother, I suffer for it, and I cannot escape it. We are so bound up into one tissue, so interdependent one upon another that our organization can be easily likened to any complex organism, where nerve and blood, and muscle, and gland, and bone seem only constructed for the uses of the whole and no one can be independent of the other.

Now, gentlemen, I have finished the address, which I fear partakes somewhat of the character of a sermon without a text. There are some other things which might, I am sure, be said which would be appropriate on an occasion like this, but I wanted to insert the soul of wit in this address and I cannot do it if I prolong it. I thank you for your kind attention.

A STUDY OF THE CHEMICAL COMPOSITION OF THE DENTAL PULP.*

BY W. H. WHITSLAR, D.D.S., M.D., YOUNGSTOWN.

THE dental pulp is a study, and we are constantly being impressed with the necessity of a thorough knowledge of all that pertains to the histological elements of it, but there seems to have been given little attention to the chemical composition of the pulp-chamber by writers of the present day, and it is for a renewal of the subject that this study is made and presented for your consideration.

When we contemplate the small size of the dental pulp and remember that it is so closely bound by the hard and irresistible walls of dentine, is it any wonder that we find amongst our chemists very few who have ever attempted to analyze it? Indeed, it is a singular fact that there is no dental literature of recent origin, at least to my knowledge, that gives an analysis of the dental pulp. The only analyst that makes mention of such an examination is Prof. Wurtz, who in 1856 published in *L'Union Medicale* an article on the subject.

* Read before the Ohio State Dental Society, at Cleveland, October, 1889.

“Examined chemically by Professor Wurtz, it was found impregnated with a strongly alkaline liquid, and containing in solution a peculiar albuminoid substance. This substance must be a modification of the albumen which is formed by the action of the alkalies upon it. It is precipitated by acetic acid, and is thus distinguished from normal albumen. The liquid which holds it in solution is incompletely coagulated by heat; it is, moreover, precipitated by the mineral acids, tannin, and the metallic salts, such as the sub-acetate of lead, sulphate of copper, corrosive sublimate; alcohol coagulates it in thick flocculi. The alkalinity of this liquid excluding the idea of its holding the phosphate of lime in a state of simple solution; it appears more probable that this salt is intimately combined in the albuminoid matter itself.”

The dental pulp reduced to ash gave, in the hands of the same chemist, a strongly alkaline residue, in which there was but a trace of phosphate of lime.

To Professor Wurtz, then, we give the credit of a very good analysis, but it must be borne in mind that the pulp is so small and heavily encased by the walls of dentine, as well as by the rather intimate union of the pulp by means of the odontoblastic attachment, so to speak, to the walls, that a percentage of the fluid contents of the pulp must be irretrievably lost in the extracting of the pulp from the chamber in which it lies. Again, an analysis of the ash of the pulp does not give the true composition of the salts as they existed in the living tissues.

The reasons are: 1st, when tissues are calcined a part of the salts may come from the oxidation of the sulphur and phosphorus of some of the organic constituents; 2nd, heat may decompose and volatilize certain chlorides and carbonates. Therefore, by making a chemical examination proper, much well worth knowing may be learned. Yet a *complete* analysis would be impossible. Willing to accept Prof. Wurtz's authority, we have made no chemical analysis of the subject.

Now, knowing the histological elements of the tooth pulp, and the chemical constitution of the separate elements, could we not make a nearer approach to the true composition chemically of the dental pulp than by a qualitative and quantitative analysis? Let us see.

The dental pulp is generally described as a roseate body—a

mucoid gelatinous mass with abundant cells intermingled and including vessels and nerves. A fact right here is worthy of notice. Magitot states, and it is affirmed by Prof. Hutzman and Dr. Bödecker, that the dental pulp is the rudiment of the dental papilla and that it differs but slightly from the same organ in the foetus. Magitot says further that the calcareous masses and crystals of hæmatoidin noticed in the embryo are absent in the adult. Different authorities, including Magitot, Tomes, Wedl, and Black, say there are no lymphatics in the dental pulp, and this is controverted by Professor Stowell, who says: "The pulp is well supplied with lymphatics, their walls being formed by the endothelial membranes ensheathing the blood vessels." In an analysis of the pulp it is not important to include an analysis of lymph excepting sugar, which was found in human lymph by an analysis made by Gubler and Quevennel.

Along the border of the odontoblastic layer of cells another study shows the deposition of lime salts, which, in their physico-chemical changes, are called calco-globulin, but when fully calcified produce phosphate and carbonate of lime, magnesia phosphate, and sodium chloride. These changes are also another means of making a real chemical analysis a failure, because as described by Tomes, "It is a remarkable fact that parts which are on the borders of calcification have a remarkable power of resisting reagents."

To sum up the tissues of the pulp there may be found the following:

Odontoblastic cells, connective tissue cells, nerve cells, medullary corpuscles, white fibrous and yellow elastic tissues, unstriped muscle fibres, cement substance for odontoblastic layer of cells, and cement substance for the connective tissues, lymph, blood and nerves.

Having learned the histological elements of the pulp, we may now inquire their chemical composition.

CELLS.—"Protoplasm is the essential constituent of the body of every cell." It is composed of water, albuminoid substances, and is associated with some carbohydrate, fat, and inorganic salts. Symbolically represented it is $C_{24} H_{17} N_3 O_8$. The medullary corpuscles are composed principally of protoplasm.

White fibrous tissue is found as a constituent of every nerve and blood vessel and is distributed throughout the pulp. The

chemical property of white fibrous tissue is collagen, a body that furnishes gelatine when boiled in water. Mucin a nitrogenous glucoside is the material that composes the cement substance that holds together the connective tissue cells. Globulin is said to be the cement substance for the odontoblastic cells.

Nerves are said to enter the pulp canal by one large branch and three to six smaller ones. The fibres are medullated and non-medullated. "There is still much doubt and uncertainty as well as difference of opinion," says Cranston Charles, "as to the true chemical constitution of nerve substance, particularly as to which are real nerve constituents and which only decomposition products or mere mixtures." Without going into detail, it is sufficient to append the analysis of Maleschott, who gives the chief constituents of nerves, not brain or spinal cord, as follows:

| | |
|--|-------|
| Water, | 57.07 |
| Ethereal extract, fat, cerebrin, cholesterin, lecithin, protogn, etc., | 22.11 |
| Salts, | 0.85 |
| Potassic phosphate, | 0.18 |
| Sodic phosphate, | 0.13 |
| Calcic phosphate, | 0.19 |

An analysis of the ash after the separation of lecithin, etc., by Geoghegan, gave

| | |
|---------------------|-------|
| Potassic chloride, | 0.277 |
| Sodic phosphate, | 0.221 |
| Potassic phosphate, | .047 |
| Sodic carbonate, | .044 |
| Magnesia phosphate, | .030 |
| Potassic sulphate, | .024 |
| Calcic phosphate, | .003 |

The blood and its vessels next command our attention. The *mean composition* of the blood as given by Becquerel and Rodier is

| | |
|--------------------|-----------------|
| Water, | per cent. 78.16 |
| Dry corpuscles, | 13.50 |
| Albuminoids, | 7.00 |
| Fibrin, | 0.25 |
| Fats, | 0.17 |
| Extractives, | 0.84 |
| Earthy phosphates, | 0.03 |
| Iron, | 0.05 |

The ash of human blood is thus given by Jarisch in the 100 parts :

| | |
|--------------------|-------|
| Chlorine, | 30.74 |
| Potash, | 27.55 |
| Sodium, | 24.11 |
| Phosphoric acid, | 8.82 |
| Sulphuric acid, | 7.11 |
| Oxide iron, | 8.16 |
| Lime and Magnesia, | 1.33 |

In all analysis of blood or other circulating fluids it must be remembered that age, sex, and situation have much to do with their composition.

The blood vessels give us additional tissues to deal with, namely—unstripped muscular fibre and the yellow elastic tissue. The elastic tissue yields elastin, and the muscles yield water, albumen, ethereal extractives, non-introgenous bodies, glycogen and glycocin (Chittenden). The presence of unstripped muscle fibres and yellow elastic fibres have been denied by some.

In conclusion, we might add that all bodies of the dental pulp are alkaline; that the CO_2 , N, O, in gaseous form would be found if it were possible to deal with a pulp on a gigantic scale; and that resolved into primary elements, the following would be found: Oxygen, Nitrogen, Hydrogen, Carbon, Phosphorus, Calcium, Sodium, Sulphur, Potassium, Chlorine, and Iron.

You will also notice that this is a study of the living dental pulp. A study of the dead and decomposing organ would be an altogether different thing.

Again, to be concise and not tiresome, many details of this paper are omitted for the sake of brevity alone, and having accomplished, in a measure, the study of the chemical composition of the dental pulp, it is hoped that this will prove an incentive to those who are better able to take up the subject to pursue it further.

FAILURES.*

BY DR. C. R. BUTLER, CLEVELAND.

WE all have them. Some may claim the contrary, and yet I make or venture the assertion, because no man has the royal her-

* Read before the Ohio State Dental Society, at Cleveland, October, 1889.

itage of infallibility. The most brilliant scholar, orator, writer, artist, mechanic, and expert engineer, often fail to exhibit their best talents.

But many things are set down as failures that are not so, for two reasons: 1st, all was done that could have been under the circumstances. There are men and women that make and control circumstances, as it were, but with all that they come short of what they would like to accomplish. Who shall say honestly, in what have they failed?

And then the world is full of people that nominate many things as failures, because they do not accord with their notions; and those in the practice of dentistry are not exempt from the general order. Then in the various branches of the profession, men promise too much. Perfect success in all cases, satisfaction given or no pay. There! that tooth is filled and it will last your life time; so it may if the patient don't live too long. These are many of the causes why fillings and other work fail that was not stated by a recent writer.

Another cause of failure is that some men have a notion that they can do it all, that is, be operator and patient, or so nearly so that some people act as though they have nothing to do but resist and fight the operator, instead of helping to have good operations made while in the chair. No matter how skillful the operator, he will fail to get the best results with a fractious patient; there is too much of the do at, instead of doing. If more time and care were spent in competing with ourselves, striving to do better things to-day than we did yesterday, instead of thinking and talking about some one across the street as a competitor, there would be less failures in what operations we did make; much valuable time to the dentist and patients is spent often in trying to convince the latter that the operations will be made in good style for much less money than some other good operator would do it (that has never seen the case), and only results in two failures instead of one if you failed to get the case on the list of appointments.

This may strike some as being ill-timed, or hints fit only for the novice; if so it is only an evidence that the undecorated statement of facts does not suit the notion of those that like an array of fine words, that go but very little way in putting saving fillings in teeth or curing the sick. I take it that we are here for something more than fine oratory.

And then if all were gifted or should present things in the most approved style of rhetoric, there would be no use or work for the publication committee in the way of editing the papers that are prepared by other men. Some persons are born critics, and it would be calamitous not to give them something to work upon. This is a busy world, and all dentists are not well up in dental histology, chemistry and bacteriology, and patients demand something more than to be taught these things. And if we should attempt to teach them in detail, life is too short for us to accomplish but little, so we are obliged to state things in the briefest possible manner what we can do as operator, and what they must and must not do to save their teeth. Never operate under dictation, nor commence to make a lot of fillings before removing roots or teeth that have become an offence to the other teeth and detrimental to general health, unless you want to invite failure. In many cases the best possible thing to do, is to put on the rubber-dam, clear out the cavities fairly, using an active antiseptic, then fill with oxyphosphate to remain for days, weeks, or months before attempting more permanent work. .

And right here I want to say that the various cements are almost invaluable, and yet many failures are made with a material that seems so simple to handle.

It is a recognized fact among skillful and painstaking surgeons, that the nice coaptation of the wounded or incised integument, will insure the quicker union and with a minor scar. If exact technee is considered a prime factor for success in making operations upon the soft parts, how much more should it be observed in dental operations, especially in filling of teeth?

The man that is attempting to fill teeth by gas-light, is making more failures than can be excused. Some individuals are striving to cover the whole field in dental art and science. They want to be esteemed as a first-class operator in filling, setter of crowns, bridge-worker, artificial vena, with the various modes of mounting artificial dentures, treatment of irregular jaws and teeth thrown in for a past-time.

Now it is expecting too much of the most skillfully constructed machine known to modern mechanics to have it produce No. 1 tacks and pins with the same dies. The great struggle seems to be to transmute thought through gold into gold, that we may be measured in commercial values, and so doing. We

have failed thus far to make that impress upon the community at large, so that we are accepted as professional men the same as the physician. They speak of Dr. A. Oh, he is only a dentist; and however much we may do or think to the contrary, this little qualification will come in for some time to come. The inventive and business genius of the American dentist is acknowledged the world over, but this alone will not suffice to give us full fellowship in a learned profession.

Some one has said that it is much easier to talk about successes in practice than of our failures; but the left hand sand throwing by the fellow that takes delight in hauling a skeleton out of other people's closet, does not always prevent one of more hideous mean stalking to view from his private chamber.

So let us be more careful in drawing individious comparisons so long as *all* are using such incompatible material as metals to repair tooth lesion.

WOMAN'S WORK IN THE PROFESSION.*

BY MARTHA J. ROBINSON, D.D.S., CLEVELAND.

My subject is so interwoven with the general rights of women that it is almost impossible to discuss a single feature of it without going somewhat over the whole ground of the equality of human rights. It is only within the present century that the sphere of woman has been broadened beyond the boundary of domestic servitude. The prejudice against her has grown out of the fact that in the past, more than to-day, "the might makes right" system has prevailed among all the nations of the world.

It will be assumed, then, that the work of woman in every department of life will be what she can do well, and likes to do. In our own profession she will not be expected to desire and be anxious to extract teeth, but the days of tooth extraction, like the fashion that excluded woman from the arts and various forms of labor in which they are now engaged, are fast passing away. Tooth extraction and all major surgical operations, we relegate to the men, as we do the military and warlike responsibilities, but we do not allow that she is unable to perform all necessary opera-

* Read before the Ohio State Dental Society, at Cleveland, October, 1889.

tions upon the teeth because she is unable to endure the privations of camp life or carry a musket.

It is nearly forty years since the first movement was made in Massachusetts in favor of "Woman's Rights," and that may be considered the first step toward the enlarged fields of labor that are now open to her. In every reform the ruling class has always said to those who desired to elevate themselves in society: "You are not fit for the privilege you ask"; and in the dental profession to-day the idea prevails to quite an extent that women are not fit to become dentists, and while they are now admitted to our colleges, that other question is raised—"What work can she best fulfill in her calling?"

That question can best be answered by saying, as I have said before, "Whatever she wants to do, and can do well." Perhaps the care of children's teeth will fall most naturally to her charge. And what greater field for labor is there than that? A much neglected field, too, for so many men think that they have neither the time nor patience to waste with the little folks. The children seem to realize that, and the slight feeling of fear they have on entering the dental office increases as your patience diminishes. No amount of coaxing will make them repeat their visit until, perhaps, that dread toothache comes, and they are forced to come in long enough to have the offender "pulled," not saved.

I think it is true that children will go more naturally to women always, but in my own case I know it to be a fact that I have succeeded in operating for children who would not let several men in the profession even make an examination. Those who have employed women as helpers in dental offices are unanimous in saying that they can get the confidence of exceedingly timid persons better than men; that they have a keener sense of the pain that is necessarily attendant in preparing cavities for filling, and that the delicacy of their touch rather mitigates that inexpressible sensation that is so hard to be endured while using the excavator and engine.

As an assistant she is invaluable, you say; but will she not be equally valuable as a co-worker? Of course she must be properly educated, the same as a man must. A girl who has stood on "the other side" of the chair and merely used a mallet for a few years, would hardly be called a valuable co-worker, but I refer to the educated woman dentist.

It is as difficult to define any rule of labor in dentistry, or any other industry, as it would be to say to the man you *must* do this or that to support yourself and get a living. Every individual should be allowed the largest liberty in selecting his calling, so long as he does not disobey wholesome laws. I was going to say that women are neater than men, but you all, that are present, are such noble exceptions to the rule, that I'll strike it out.

The treating of diseased teeth and gums, and the minor operations belonging to the dental surgeon, the woman is eminently qualified to perform. And in regulating teeth and all prosthetic dentistry, she will not be inferior to man. Women certainly have more patience with women. So if she can save the teeth of those poor nervous sisters who would rather lose them than sit for a couple of hours under a man's hand, she certainly has a place in the profession. But do I hear some one say, "Can she save them?" Of course she can; she can remember that "the vulnerable points in filling an incisor or bicuspid, for instance, are the cervical and lingual borders, just as well as a man can. It is also a fact that woman's eye, from long training, will distinguish shades of color better than most men's will, so she will be less apt to overlook that treacherous white decalcification at those borders.

And she *can* have mechanical ability, and *must* have, to make a success of her work. I know that the majority of women haven't an excess of that necessary quality, because it has not been brought into exercise, but the majority of women would not be dentists if they could. But do give those the opportunity that have the ability. So let me say with Wendell Phillips, "Welcome me henceforth, brother, to your arena; and let facts—not theories—settle my capacity, and therefore, my sphere."

ONE WAY OF INCREASING A DENTIST'S USEFULNESS.*

BY WILLIAM D. KEMPTON, M.D., D.D.S., CINCINNATI.

In this age of electric motors and natural gas, the demands on the knowledge, the skill and the endurance of the dental sur-

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geon are daily increasing, and how best to meet this demand is a problem that is commanding the attention of many of our profession. The solutions have been many and various. With some it consists in a thorough knowledge of the nature and causes of decay, and in their enthusiasm they have pursued their studies and researches so far, and have become so familiar with the little bugs which infest our mouths that they are able to give us an accurate description of their manners and customs, and their relationships down to cousins of the forty-second degree. With others it is the discovery of the best material for replacing lost tooth structure, and they grow eloquent in advocating this or that material to the exclusion of all others. With still others it is the best method of introducing these materials, and they tell us, with an air that disarms our doubts, of their ability to drill out and fill nerve canals in comparison with which the most tortuous ram's horn is remarkably straight. With others again it is the use of the latest and most improved machinery, and they have devised apparatus whose shapes are wonderful, whose mechanism is intricate, and whose uses, in some cases, a mystery to God. None of these solutions, however, take into consideration the dentist himself who may possess all this knowledge and ability, and yet be like an ocean greyhound without steam, or a watch that is unwound.

This generation, with its increasing wealth, its high pressure system of education and the fierce struggle of many to keep up appearances, is bringing to the dentist's care an annually increasing number of pampered children, hysterical girls and excitable women to whom the slightest suggestion of pain brings visions of the Spanish inquisition in all its horrible details, and who are seized with convulsions at the sight of an instrument and shrink from the contact of even an innocent piece of cotton..

To the conscientious dentist who desires to be as thorough as possible and to avoid inflicting pain, the tears, the piteous appeals for mercy, the restlessness of such patients, the continual seizing of his hands, the frequent and causeless starts, and their repeatedly begging him to desist, all tend to use up, wear out and exhaust his reserve supply of nerve force, and makes him nervous, irritable, cranky and impatient, and unfits him for the proper discharge of his duties.

The teeth of these persons, however, continue to decay and

to need attention, and as the financial condition of the average dentist will not admit of his turning such patients away, something must be done to brace up his weakened nervous system. On this point I think we will all agree, but when it comes to prescribing a remedy our views widely differ. Some, thinking that all they needed was exercise, have gone into their laboratories to swing dumb-bells and to brandish Indian clubs to the great jeopardy of the shelving. They have done this, probably a week, possibly a month, but rarely longer, when on failing to experience the expected improvement they have given up in disgust. Others again have tried walking only to find that they were still further exhausted and less fit for duty. One cause of the failure of these remedies lies in the fact that they are resorted to solely as curative measures, just as we would take a dose of epsom salts, and for that reason soon become tiresome. Any remedy, therefore, to be efficacious must combine exercise and recreation with fresh air and sunshine, and no one thing does this to the same degree that the bicycle does. It is because I speak from experience that I make this assertion so positively. Six years ago my appetite was poor and headaches were common, and neither walking nor dumb-bells afforded me any relief. In despair I bought a bicycle, and, after learning to ride it, soon found that I ate more, took less medicine, and felt better than I had for years. In suggesting this remedy I am aware that it will meet with several objections. Some say that bicycles are dangerous? Well, perhaps they are, but so are bath tubs for people have been drowned in them, yet no sane person would urge that as an excuse for uncleanness. Ninety-nine per cent. of the accidents to wheelmen are due either to recklessness or carelessness and are unavoidable. In six years experience I have never met with an accident that in any way incapacitated me for practicing my profession. Bicycles, in fact, are much less dangerous than horses, for they neither bite, run away, nor kick.

It is also said that it is a difficult matter to learn to ride. This point is as well taken as the previous one. I have known persons, in charge of a good rider, to be fully a half hour in learning to ride. For that reason alone there are only a half-million cycles in use in England, while in this country the League of American Wheelmen, which includes less than one-tenth of our riders, has only about twelve thousand members.

Again it is said that bicycle riding is only indulged in by the young and frivolous, and is therefore not just the thing for the dignified dental practitioner. True again! I have never heard of more than two persons learning to ride at the age of 75 years. Then the Cincinnati Bicycle Club, to which I belong, has only two members that are past 50 years of age, seven that are past 40, and twenty-eight that are past 30; and because it is so frivolous there is only one lawyer, three dentists, four M. D.'s in the club the rest being only common business men. For that reason also, only four of the seventeen representatives of the Ohio Division of the League of American Wheelmen are dentists.

It is also objected that many persons soon give up riding. Yes that is true. I once knew a young man who was in the habit of taking in such quantities of alcoholic stimulants that his wheel frequently rebelled and pitched him into the middle of the road. He gave up riding because he believed it was injurious to his health. Another rider who patronized every saloon on the road till his stomach began to shirk its duties, also came to the conclusion that cycling was not good for his health. Then persons suffering from gonorrhœa, syphilis and similar infantile diseases have given up riding for the same reason. There is another class that soon give up riding, namely, those who imagine they will be looked on as novices unless they ride farther or faster than every one else, and, in their desire to emulate the example of trained athletes, become slaves to their wheels and find the sport tiresome and anything but beneficial.

There are some, however, who have not given up riding, who lock up their offices on Sunday morning, and, leaving the aroma of dead nerves and all thoughts of carious teeth behind them, mount their wheels, and, wandering through rural scenes, feast their eyes on the beauties of nature. When such persons return to their offices they take with them the songs of birds, the fragrance of flowers, and bits of sunshine to brighten up their lives for the following week.

EXCELSIOR.*

BY DR. H. H. HARRISON, WHEELING, W. VA.

EXCELSIOR is a station of high degree attainable by many in all professions, but not by every one. It is not a degree of definite limit, but one toward which all our efforts should tend. Those with natural gifts may reach it, and even with most of these it requires energy and application; but with those who may not have natural gifts in a specific line, excelsior cannot be reached though they may struggle never so hard. This latter class is the dead wood that all professions must carry, but in order to place our record before the world in the proper light, we must not only have dental education well in advance, laws also that protect the unwary from the fingers of the quack, but we must adopt some systematic plan of educating the people up to the standard of highest appreciation of the educated dentist. Am glad to say this is being done to a considerable extent by many in the profession, both by precept and example, but it is too slow for this rapid age, and we must have a little more electricity and gas administered to bring about this desired result. Am very sure the best educated talent in our profession to-day is not fully appreciated by the people.

The question may arise in the minds of some, "How can this popular education be brought about?" It will be said by others that there are treatises on popular dentistry before the public, and what benefit have they brought about? They have done good, but are circumscribed in their usefulness by the fact that mercenary motives are too prominent in this production, and too single-handed—not enough authority behind them.

Some two years ago I suggested to some of the members of this society the wisdom of publishing a treatise on Popular Dentistry, to be approved by the society and circulated among our patients without cost to them to be sure to get them into their hands. Of course the publishers would furnish to purchasers and the State society would be at no expense except to furnish the brains to write these few pages.

* Read before the Ohio State Dental Society, at Cleveland, October, 1899.

I am well aware that many of you have a business that may not require this so far as you are individually concerned, but how about your patients who are neglecting certain operations, that when pointed out to them they admit that they were totally ignorant of the real facts as they now appear. You cannot go into detail with all your patients, for your time is too precious, and this plan will save many a lengthy dissertation on some special point in practice.

When we look around us and discover the numberless cases of poor dentistry tolerated by even intelligent people, because they know no better, it should bring to us serious reflection as to who is responsible for all this. You may talk about the survival of the fittest, but this will permit generations yet unborn to suffer the effects of ignorance, and go down to an untimely end thinking that dentistry is nothing but a trade and possibly a poor one at that. Give the people to know that there are educated men in our profession that understand the application of remedies for the treatment of pathological conditions that arise within the mouth better than the general practitioner of medicine. I am perfectly disgusted with the idea that M. D.'s are called to patients with fractured jaws, with alveolar hemorrhage, with tumors of the mouth, harelip and ptyalism. This should not be, but until people know more of the sphere of the worldly dentist, it must continue. The plan I mention will not only correct such as the above, but it places the quack dentist just where he ought to be, that all may know him by his foot-prints.

This plan has been adopted by our State Society already, and I should like to see the Ohio State Dental Society appoint a committee that would do this work and let the Board of Directors endorse it when submitted to them if it be up to their idea.

Gentlemen, I do not write this without the expectation of criticism, for I know that there are objections can be found, but what good project can be presented that is free from weakness? But I feel the necessity of this so very much that I cannot refrain from speaking out. "Out of the fullness of the heart the mouth speaketh."

REPORT OF SEVENTH DISTRICT, OHIO DENTAL SOCIETY.*

BY E. G. BETTY, D.D.S., CINCINNATI.

IN making this report to the State body I considered it my duty, in view of the fact that the districts are all subordinate to the State Society, and that it therefore is entitled to a knowledge of what has been done by them, I shall, therefore briefly review the work accomplished by the Seventh District.

The preliminary meeting, pursuant to call by printed notices, was held in Dayton, Montgomery county, May 21st of the current year, at the Phillips House. Thirteen professional brothers responded to the call and took active part in the work of organization, the attendance representing Hamilton, Montgomery, Butler, Greene, Preble and Clinton counties, being a little over half of the counties included in our district.

The object of the meeting was announced by State-committeeman, Dr. J. Taft, all present engaging in the discussion. All expressed themselves as favorable to the plan, and on motion, adopted the constitution, by-laws, and order of business suggested by the State committee.

The election of officers for the year resulted in the choice of E. G. Betty, Hamilton county, President; L. E. Custer, Montgomery county, Vice-President; Chas. Welch, Clinton county, Secretary; Chas. I. Keely, Butler county, Treasurer.

J. Taft, Hamilton county, W. H. Sillito, Greene county, L. C. Adams, Montgomery county, Executive Committee.

The society then adjourned to reassemble on the third Tuesday of September (17 inst), 1889.

Upon that day the society met in Lincoln Club Hall, Cincinnati, a good attendance present. Interesting papers were read and discussed to the satisfaction and benefit of the members.

Dr. C. M. Wright's paper propounded the question, "Has a Dentist the Legal or Moral Right to Practice General Medicine?"

Dr. J. Taft read a paper on "Clinical Instruction."

Dr. J. R. Callahan's paper treated of "The Care of Children's Teeth."

* Read before the Ohio State Dental Society, at Cleveland, October, 1889.

All these papers will appear in print so that many others may enjoy and profit by them. In addition to the papers and discussions, a number of interesting cases, specimens, models and appliances were exhibited and commented upon.

It is our intention to hold clinics hereafter, a wise conclusion.

During the meeting nine new members, all from Hamilton county, were elected, the roster now showing a total membership of twenty-two (22), a splendid record for so young a society.

The chairman in his opening address suggested the propriety and feasibility of the District Societies making a complete roster of the dentists of the State of Ohio. By resolution, the Executive Committee, consisting of Drs. J. Taft, H. A. Smith, and L. E. Custer was instructed to list the dentists practicing in the Seventh District.

I mention this matter at this time, Mr. Chairman, in order to bring it before State Society that it may assist the several districts in consummating this important work.

In conclusion, I would like to suggest that the presentation of annual reports from the Districts be given a permanent place on the program of the annual meetings of the State Society, in order that the parent body may have a complete knowledge of what is being done throughout the State and inure to the benefit of all.

INCONSISTENCY.—THE LICENSE QUESTION IN COURT.

BY DR. G. A. MILLS.

THIS is found in the September number of several journals, and it will doubtless be read with much interest. A question will arise in many minds whether the United States Court would sustain this decision?

I am not in full sympathy with the large legislation that has so characterized the several State societies. New York has been the lead for many other States, and some (one, New Jersey) has tried to follow in its folly. We say folly, for we were in at the first inning of this society (New York) and set our face against the introduction of a degree, and surrendered our permanent membership because of it, and have taken occasion to jolt the

car of the covenant at favorable times. We have had no little correspondence over this question, which might be interesting so far as it might be instructive in showing how it is viewed by many members of our calling. Where are the men that have the carnage of their convictions? Those that say in private they have them.

In the August number of the *Cosmos*, an excellent article in the proceedings of the Odontological Society is found, "The Function of the Dental Society," and it is voted by this society an endorsement. This commits them to the precepts of the paper. So far, so good.

Does not this society find itself in a position of inconsistency at once? We say, "Yes," in reference to the sustaining of this degree of "M.D.S.," which stands as a blotch on the fame of every worthy dentist. It is not necessary to go into a detail of history regarding the creation of this blunder, although we could give it in full.

As soon as Dr. Meriam proclaimed against the patent question, and showed that it was inconsistent with a liberal profession, good men immediately commenced to shake themselves. They showed a disposition to try and be good boys first, so that they might be angels bye-and-bye. I ask, can we be called a liberal profession and let such a monstrosity as the "M.D.S.," remain as an enemy to all our schools? The *Cosmos*, true to the interests of a liberal profession, showed the courage of its convictions when it cried against the New Jersey legislature falling into the same pit; this by an outspoken editorial. The times of ignorance are passing, and can no longer be winked at. Our calling will come into line with all that is progressive, yet it has a good deal of deadwood to throw off, which is the necessary product of all development.

I will publish a fact which is only known to a few. I published an anonymous article in the *Dental Register*, a few years since, on purpose to see if I could draw a fire, knowing as I did some of the private views of the *prominent* members of the New York society. Only one member peeped. He replied by a scurrilous article, saying the author was "Only an old sorehead!" One very prominent member had given me his emphatic feelings, characterized the creating of this degree as a *great mistake*; and said he should try to bear his energy (and he is a large man).

against it at the next annual meeting. He did it by staying away, and many wondered why he was absent. As he committed himself in the presence of six other dentists of fair fame, the truth of it does not rest on our veracity, so we can bear it if it is questioned. As we do not carry a degree of any kind it cannot be charged of us that we have any personal grounds for trying to probe this old sore once more. We do it only for the good and the farther advancement of a liberal profession.

AN ADDRESS ON ANÆSTHETICS.*

BY DUDLEY W. BUXTON, M.D., B.S.,

Member of the Royal College of Physicians, Administrator of Anæsthetics in University College Hospital, the Hospital for Women, Soho Square, and Assistant Anæsthetist to the London Dental Hospital.

AFTER some general remarks Dr. Dudley Buxton said there were some points upon which it might not be uninteresting to enlarge.

In reference to the preparation of a patient preliminary to operation, it was in the case of nitrous oxide gas necessary to ensure that the patient was able to make full use of his breathing capacity. Simply loosening the upper portion of the dress is insufficient, although a wise procedure, since when the head is fully extended upon the trunk the neck is apt to become constricted by bands, collars, etc. As a rule it is easy to detect by the shape of the chest whether unduly tight clothing is worn, and if there be any suspicion of such a state of things a simple and expeditious test should be applied. The hands should be placed lightly upon the neck just below the collar bones and the patient instructed to take a deep breath. The hands should then be placed lightly upon the sides, just above the hips, and the patient again instructed to breathe deeply. If the corsets are too tight the amount of movement will be very slight, and then it is unnecessary to go through all this in every case, and here, as elsewhere, the administrator of the anæsthetic must rely upon his common-sense and judgment. The necessity for attention to these preliminaries has been brought forcibly home to us all by the recent fatality in Edinburgh where a lady, aged 71, was so tightly laced

* Delivered before the Students' Society, London School of Dental Surgery.

that when under the influence of nitrous oxide gas she ceased to breathe, and as she was the subject of extensive heart disease, her life was lost through cardiac failure, consequent, I have no doubt, to the hampering of her breathing induced by tight laces and a distended stomach.

When these preliminaries have been adjusted it is important to see that the apparatus is most favorable as regards the patient's safety and comfort. I prefer Clover's methods to any I have yet seen, and always employ them. I think one cannot insist too strongly upon the necessity for an effectual expiration valve. The importance of this is determined by the necessity there is to abolish any asphyxial phenomena from nitrous oxide narcosis. Rebreathing exhaled air, or gas means taking back into the lungs and pulmonary circulation the poisonous refuse exhaled from the epithelium of the respiratory tract. Careful experience also has shown that even thoroughly purified air, which has once been breathed, is deleterious when rebreathed, and is, moreover, incapable of supporting life. This, then, is a further, and an additional reason why once breathed gas should be got rid of by a free expiration valve and not rebreathed. If what I have said is understood, it will be readily seen why I have so strong an objection to supplemental bags, and have so persistently decried their use.

Another important part of the apparatus consists of the gags, or as I prefer to call them "props." The mechanical gags, such as Buck's, are theoretically good, but are dangerous in practice from their liability to break, besides they get tooth indented and look dirty. In dental practice not only must all appliances *be* scrupulously clean but they must *look* clean. More than one almost fatal and even fatal result has followed breaking of spring gags.

During the administration it is not only essential that the anæsthetist should fulfil his duties efficiently, but it is as important for the patient to carry out the anæsthetist's instructions. Experience has taught me that it is far more efficacious to show a patient what to do, than simply to explain what you wish him to do. For instance, if you tell a patient to breathe deeply, he almost invariably takes a prolonged inspiration, and then holds his breath with the utmost pertinacity, and naturally complains, in the sequel, of feeling suffocated, since the narcosis is that mixed

form not inappropriately called "nitrous oxide and asphyxial narcosis." On the other hand, if you tell him to blow out with all his might, or as Mr. Clover was in the habit of saying, "Blow as if you were blowing upon a looking-glass," he will obey and expire deeply, and in spite of himself will inspire just as deeply, for by voluntary effort we can hold our breath, but by no voluntary effort can we maintain the chest empty.

Upon the subject of the "mixed anæsthesia" of "nitrous oxide and asphyxia," I may say that I am surprised that any student of this hospital should make the statement that we do not know much about the physiological action of nitrous oxide gas! I venture to think that we know more about the physiological action of this agent than we do about any of the others, for the reasons I am about to state. And again I join issue with Mr. Oliver when he tells us that we have learned nothing about the physiological action of the gas from the recent trials which have been made at our hospital of mixtures of oxygen and nitrous oxide. *Palmam qui meruit ferat*, let him wear the palm who has earned the prize. The great merit which belongs to my colleague Dr. Hewitt, lies in the painstaking and ingenious way in which he has striven to place in the range of practical anæsthetics the mixture of oxygen and nitrous oxide, but we must not forget that to one of the most original of French scientists of the past generation—M. Paul Bert, belongs the suggestion of employing nitrous oxide and oxygen, and the method is universally called after his name, Bert's method. To Bert we owe one great proof that nitrous oxide acts as a pure anæsthetic and not as an asphyxiant, for it was he who demonstrated that when given under pressure (true atmospheric pressure) with oxygen, the vital processes were carried on uninterruptedly even for over an hour of continuous inhalations. This took place ten years ago last July. Now as to the physiological action of nitrous oxide. Mr. Oliver does not appear to be aware that within the last ten years some rather elaborate and accurate researches have been undertaken which have shown, I think I may say, conclusively that—

1. Nitrous oxide acts as such, and that asphyxia does not in any way play a part in producing narcosis. Animals killed by asphyxiation evince evidence of suffering almost up to the last gasp, while those that die under nitrous oxide die absolutely insensient and unconscious. This fact has curiously enough been entirely overlooked by recent writers upon asphyxia.

2. Nitrous oxide possesses a specific action upon the cerebro spinal axis, producing well-marked vasomotorial changes leading to considerable increase in the bulk of the hemispheres and cord and developing interstitial pressure upon the cerebral and spinal tissues which determines narcosis. I may not however linger further, as to those who desire, can, by reference to the transactions of the Odontological Society for 1886 and '87, find the subject fully treated in two papers I contributed. Before leaving the subject of the mixture of oxygen and nitrous oxide, I must add a word of caution. We are not at present in a position to say how far it is safe to admit of continued inhalation of oxygen, and from the experience we have gained of its use in therapeutics, we are bound to admit it is not free from danger, owing to the excessive oxidation it gives rise to.

The completion of nitrous oxide anæsthesia is according to the reader of the paper, told by the loss of conjunctival reflex. I think this sign is too uncertain to be deemed reliable, stertor and commencing jactitation, are, in my experience, the only truly reliable signs of unconsciousness.

But who are to be the administrators of nitrous oxide? It is unfortunately the fact that as the law at present stands, no one is debarred from giving any anæsthetic, provided it is not done with an evil intent. Just as the law does not interdict any one from practising as a doctor or dentist, provided he does not assume a title which would induce the public to believe him to be a registered practitioner, so it does not discountenance any one from administering nitrous oxide. Of course, under various Acts the patient, or his friends could recover damages for injuries incurred through the maladministration of an anæsthetic, but it goes no further. However, there is very little doubt that at the present day it would go very hard with any one who had a death if the administrator were not a qualified or registered practitioner, as a qualification is presumptive evidence that the incumbent knows something about nitrous oxide administration.

Speaking of death and dangers of anæsthetics, I should like to draw attention to the importance of total inversion in the treatment of syncope occurring under an anæsthetic, and my remarks apply with equal force to cardiac failure under gas, and in the *first* or *second* stage of chloroform or ether narcosis. Nelaton was the first who insisted upon the value of inversion in chloroform faintness, and the method is called after his name. E

have had some cases at the Dental Hospital which have strikingly exemplified the value of the manœuvre, cases in which faintness occurred, and alarming failure of the heart, and respiration stopped at the end of the operation and before any return to consciousness had taken place. I inverted, letting the head hang and raising the heels in the air, and at once the color returned and all faintness passed off. This manœuvre can be executed without any indelicacy or difficulty. In most of the dental chairs, arrangements exist by which the head can be lowered beneath the level of the heels, and this aids the process of inversion which may, or may not be completed by raising the heels according as the patient shows signs of recovery or not.

There has long been a mistaken idea in the minds of persons not conversant with the more modern and better methods of administering ether that persons take longer to become unconscious under ether than under chloroform, whereas the opposite is the case, the average time of etherization being in my hands two minutes, or when the gas is used as a preliminary one minute and a half, while chloroformization cannot safely be achieved in less than from five to eight minutes. I spoke just now of the value of inversion as a treatment for chloroform syncope, it is necessary therefore, that I should point out that discrimination in selecting the cases must be employed. In the first stage of chloroformization, so-called reflex syncope may occur, not only from fright, shock (imperfect anæsthesia) but also, as the experiments of Browne-Sequard, and others have shown, from the impinging of a too strong vapor upon the posterior pharyngeal wall, and so starting inhibiting action upon the heart through the pharyngeal plexus. It is in all these cases that inversion is most useful. When, however, syncope occurs as the result of cessation of respiration, when the lungs are engorged, and the right heart over-filled with blood, when, in short, asphyxia precedes heart failure, inversion is not to be practised, as it would only pour more blood into the already filled heart, and still further increase the difficulties of an organ already hampered.

There is much more I might say upon this subject, but as nitrous oxide is of greater interest to you than the alcohol series of anæsthetics, I have preferred to enlarge upon that, and cannot any longer monopolize your time and keep others from addressing you.

PATENTS CONSIDERED IN RELATION TO THE PATENTEES AND THE PUBLIC.

BY NEMO.

ARTICLE I Section 8 of the Constitution of the United States, says:

“Congress shall have power to promote the progress of science and all the useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”

The Patent Laws of 1790, 1793, 1836, 1861 and others are entitled, “Act to promote the useful arts.”

Laws conferring upon individuals or corporations special privileges, or immunities are made upon the theory that the general public, which is represented by the law-makers, is to be benefited. Substantially the people say, “For a prospective gain to all, we will give you certain limited monopolies and relieve you of some obligations to encourage you to employ your time in ways, and to undertake enterprises, which will be for the good of the people.”

The term monopolies is not used here in any offensive sense, but in its literal meaning.

The individual asking for a patent which shall protect him in the sole use of his invention is not supposed to be acting in the interests of the public, but for his own financial advantage; neither does the law give him a patent because it helps the claimant to get rich, but, as we have seen, for other and public reasons.

With this view of the purpose of the laws for conferring patents, it ought not to be difficult to determine the conditions upon which they should be granted. First, in the language of the constitution, “to promote the progress of science and all the useful arts.”

This title is broad enough to cover the whole ground, and it is reiterated in some form in the title of every act creating or amending the Patent Laws.

The plain language of the Patent Laws of the United States is that the claimant should be the first and original inventor of

the thing claimed, also that it should be the result of "effort, industry, or genius" in the claimant. When these conditions are complied with no one can reasonably object to the granting of a patent, and the purpose of the law, "to promote the progress of science and all the useful arts," will be attained.

Keeping the distinction plainly in view between the purpose of the people in granting patents, and that of the inventor in soliciting the grant, we shall see that certain considerations ought not to influence the decisions of the Patent Office.

First, the fact that the patents granted by the Commissioner may be revised by the courts should not be allowed to influence his decisions.

Often, apparently, this is not the case. Too often it seems plain that well-paid solicitors have succeeded in worrying the officials into favorable reports on the most trivial applications for inventions either worthless, or requiring a great stretch of the imagination to find anything new, or any evidence of "effort, industry, or genius" in them.

Such decisions in the Patent Office afford unscrupulous men an opportunity to hinder the business of other manufacturers, or extort royalties to which they have no moral right, although they may legally claim them.

Such patents act directly against the purpose for which the laws were made; instead of developing science and art, the tendency of such is to discourage men who are working to develop something useful and practical; they feel that there is no security for their labor, and that until they have been through a long and expensive suit or series of suits at law they will not know whether the work of their brains is to be legally their own or that of some one who has, by the aid of a long purse, succeeded against right and justice.

As an example of the class of patents that ought not to be granted, take one that has been recently issued for the form of the gum of artificial teeth. The claim is for the corrugated appearance and marginal swell near the border of the gum. This patent, it will be observed, is for a form of the artificial gum as connected with artificial teeth.

Now the parties who obtained this patent claim to make the most perfect imitations of the natural teeth and gums, and therefore the claim in their patent is for something which is only a

copy of a well-known natural form, and not an invention, the result of an expenditure of "effort, industry, or genius," and therefore, under the law, clearly not patentable.

Again, suppose the form were patentable, the law requires that the claimant shall be the first and original inventor, to entitle him to a patent.

In this case the patentees were not the first to copy this form, as shown by the cuts below.

These cuts are from samples taken from the stock of Mr. H. D. Justi, of Philadelphia, and clearly show that long before this patent he had not overlooked this peculiarity in the form of the gum, but had accurately modeled it in his own factory.

Fig. 1 shows a form of teeth and gum made in the year 1864; of these there were some dozen different moulds, varying in some points, but all having the same characteristic form of the gum.

The sectional cut of the front block shows the corrugation.

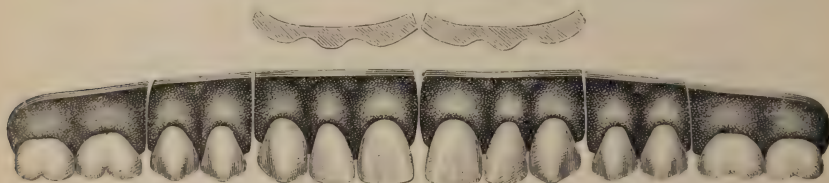


FIG. 1.

Fig. 2 represents a complete set of teeth which, with others of the same form, was exhibited at the Centennial Exposition in Philadelphia, 1876.

It will be seen that the corrugated gum and the swell near the necks of the teeth are very strongly marked.



FIG. 2.

Fig. 3 is a set of upper teeth made and exhibited at the same time as Fig. 2.

This cut more especially shows the swell near the necks of the teeth.



FIG. 3.

These cuts show beyond doubt that the imitation of the natural form of artificial gum, claimed as new in the patent, are not even original copies of nature.

To show where there is originality in this manufacture we quote from the report of the Judges of the Centennial Exposition, 1876.

Referring to the state of the manufacture about the year 1855, they say :

“Then a rubber base was introduced, and from that time the entire dental business has been revolutionized. He (Mr. Justi) made a specialty at that time of supplying manufacturers with moulds of sectional teeth. There were two modes of manufacturing these teeth, but neither worked to good advantage, one mode being that in which all the colors were put into the mould, and this resulted in bad colors of the gums, owing to the construction of the mould. By the other mode the blue and yellow colors were put into the mould first; then the material was taken out of the mould and carefully put into the first fire to undergo a slight degree of heat, called a ‘biscuiting,’ and the gum was next applied with a brush and then fused or burned ready for use. Seeing that in this latter mode there was room for improvement, he commenced to make experiments, and succeeded in constructing moulds suitable to the various formations of the jaws, *adopting curved lines in which he could sink any depth around the neck of the teeth* to receive the gum color, and temporizing the materials so that in one very easy operation he had the teeth ready to finish. The results created general admiration, the teeth being light in bulk, and remarkably life-like in their appearance, the gums especially so. In order to distinguish this make of teeth

from others, he adopted a trade-mark accompanied with his name. *This mode of manufacturing artificial teeth has since been copied by all other manufacturers.*"

For these improvements which rendered the present perfection of this manufacture possible, and which, as stated in the report, "were copied by all other manufacturers," Mr. Justi neither received nor asked any patents, but has always been willing that others should profit by following as nearly as they could in his footsteps; his own productions being so far in the advance that imitators caused him neither fear nor jealousy.

In this connection there are a few points worthy of special consideration.

Patents should be granted under such conditions that the patentee will have some assurance that the rights nominally conveyed to him are really guaranteed by the authority of the United States.

Under the present construction of the laws, the patentee is only guaranteed the right to a law suit, and this is so well understood that the intending purchaser of a patent first of all institutes a careful and extensive search to ascertain whether there is any real value in it.

Another abuse of patent privileges is in procuring patents and not manufacturing the thing patented. This dog in the manger style is entirely contrary to the purpose for which patents are granted, that is the public good.

A provision that if, after a reasonable time, the thing patented was not offered for sale the patent should be void, would remedy this evil and permit others to supply the desired article. Valuable improvements are often locked up because manufacturers fear competition with their own productions.

The expediency of patent laws has been a subject of much discussion, but, without entering upon that question, I believe all will agree that there should be radical improvement in their administration.

Editor's Specials.

"Write the Vision and make it plain."

OHIO STATE DENTAL SOCIETY.

THE sixth annual meeting was held at the Hollenden Hotel, Cleveland, Ohio, on October 29, 30 and 31, 1889. The attendance was large and the meeting interesting so far as papers and discussions were concerned. It is to be hoped that by another year at least several interesting clinics will be given. Clinics should be made a special feature of these meetings as they are of great interest to every one and do much toward bringing out dentists who would otherwise stay away from the society.

The papers read at this session appear in the present number of the OHIO JOURNAL. The discussion of Dr. Wright's address regarding dental law was quite extended, and by vote a committee, consisting of J. Taft, J. R. Callahan and Otto Arnold, was appointed to investigate and take steps toward getting a suitable law, or at least have the present law properly amended so as to prohibit unqualified dentists from practicing in the State of Ohio.

Regarding District Societies the old committee was continued and further effort will be made to complete the organization of these Districts throughout the State.

The following is a list of new members: Dr. H. H. Newton, Cleveland; Dr. W. D. Kempton, Cincinnati; Dr. Martha J. Robinson, Cleveland; Dr. J. W. Jungmann, Cleveland; Dr. J. R. Owens, Cleveland; Dr. P. S. Bollinger, Dayton; Dr. F. H. Lyder, Akron, and Dr. F. E. Battershell, New Philadelphia.

Dr. C. H. James, Cincinnati, and Dr. H. H. Harrison, Wheeling, W. Va., were elected honorary members.

Dr. L. E. Custer, of Dayton, was elected to fill the vacancy in the State Board of Examiners caused by the death of Dr. F. H. Rehwinkel.

Among those in attendance from abroad we noticed J. Taft, H. A. Smith, C. M. Wright, E. G. Betty, J. R. Callahan, and W. D. Kempton, Cincinnati; A. F. Emminger, Otto Arnold, and W. H. Todd, Columbus; L. E. Custer, and P. S. Bollinger, Day-

ton; C. H. Harroun, and L. P. Bethel, Toledo; T. S. Seeley, and S. P. Hildreth, Norwalk; W. H. Whitslar, and T. H. Whitesides, Youngstown; F. C. Runyan, Springfield; J. W. Hisey, Massillon; S. D. Potterf, Defiance; W. T. Chambers, Delphos; F. E. Battershell, New Philadelphia; J. A. Hisey, Ashland; L. W. Ballard, Alliance; C. H. Birkett, E. Liverpool; C. M. Roe, Mansfield; B. F. Johnson, Camden; F. S. Maxwell, Steubenville; Chas. Welch, Wilmington; C. I. Keely, Hamilton; J. F. Siddall, Oberlin; F. E. Lyon, F. H. Lyder, and F. E. Knowlton, Akron; A. S. Condit, Findlay; W. H. Sillito, Xenia; C. D. Peck, and E. J. Wayne, Sandusky; P. D. Bishop, Andover; W. H. Sedgwick, and John Watkins, Granville; C. A. Murray, Van Wert; G. D. Billings, Medina; Geo. H. Wilson, Painesville.

Officers for the ensuing year are as follows: President, W. H. Sedgwick, Granville; 1st Vice-President, Martha J. Robinson, Cleveland; 2nd Vice-President, E. G. Betty, Cincinnati; Secretary, J. R. Callahan, Cincinnati; Treasurer, C. I. Keely, Hamilton.

The next annual meeting will be held at Columbus in October, 1890.

REVIVAL OF ANCIENT LITERATURE.

It has been said that a wag of an editor, during the agricultural fair season, headed his columns with the description of the horse, as found in the book of Job. His rival editor said that some allowance must be made for reporters when horse-flesh is under consideration, but the editor across the way has gone wild on the *highfalutin* line, in his last week's horse-talk. In like manner, the *Items of Interest* has overflowed with bombast in publishing an article called "Lord Oxygen." And he doesn't forget to credit, but charges George Watt with being the perpetrator. More than a quarter of a century ago, a lady elocutionist opened the door of the present writer's office, and said, "I've read 'Lord Oxygen!'" I set my washstand on the centertable, placed a footstool on it, climbed up, and, by standing tip-toe, I got through it in one evening." And now we understand. This must be the same thing that the *Items* man throws at us.

We feel complimented; and suggest that, when he draws from Job, or even Genesis, he follow copy, and have a proof-reader.

Seeing the old article again calls up a sad remembrance: When the writer had seated himself, and had written the word "Oxygen," as a heading, a messenger rushed in with the news that a favorite little nephew had fallen from a high building. All thought of an introductory lecture was at once abandoned, and the mangled, dying boy was nursed with undivided attention. His body was laid away, and failing to find sleep, the writer sat down, and penciled the article at a single dash, pushing the pages from the desk as, one by one, they were filled. The class, or somebody else, is responsible for the prefix "Lord," in the title. This article suggested "Lady Hydrogen," and "Nature's Royal Family," articles of a later date, written in similar style.

As many of our readers have been born since the article was penned, these remarks may interest some of them. We don't know why Brother Welch reproduces it; but we take for granted that his motive is not unfriendly.

IMPORTANT.

As most of our subscribers have requested us to send THE OHIO JOURNAL to their address until forbid, we will continue sending THE JOURNAL to all unless otherwise notified. Should there be any of our subscribers who, from any cause, desire to have the JOURNAL discontinued they will do us a special favor by so notifying us.

Our subscribers should also bear in mind that it costs a great amount of money to issue a journal, and we kindly ask them to be as prompt as convenient, in remitting us the amount of subscription, which is only \$2.00.

SAD INDEED.

MANY readers of the JOURNAL remember the late Dr. J. R. Walker, of New Orleans. And many more are familiar with the *nom de plume*, "Mrs. M. W. J.," who is such an industrious, prompt, and faithful reporter and contributor; and many of them know that she is the widow of the late Dr. Walker.

Again she is sadly bereaved. Last June her second daughter,

a young lady of nineteen years, was shot in the head by the accidental discharge of a pistol. The result was paralysis of the left side. On the 26th of September she suddenly passed away, from hemorrhage on the brain, after some weeks of extreme suffering.

The JOURNAL offers its fullest sympathy to Mrs. W. in her trials; and we sincerely hope she will look to the source of all consolation.

What We See and Hear.

EDITED BY L. P. BETHEL, D. D. S.

[We are always pleased to receive short, practical articles for this department, and invite any to send brief descriptions of such appliances, devices, methods, remedies, etc., as will be of interest to the profession. Send all communications to the Editor, 513 Jefferson St., Toledo, O.]

POWDER CARRIER.—A piece of rubber tubing drawn over a wooden or iron mandrel makes an excellent device for carrying polishing powders, for use in the laboratory.—*Archives.*

FINE CAST.—DR. CHAS. P. GROUT, says that marble dust and glyceride, 4 oz. glycerine to one quart marble dust, makes a beautiful cast, taking care not to have the metal too hot and not to pour it directly upon the palatine surface.

PULP CAPPING.—After excavating carefully, leaving a layer of softened dentine over spot of exposure, saturate with wood creosote, make a pillow of "platinum gold folds," and with this cover the point. An amalgam filling may be packed over this without danger to the pulp.—DR. W. N. MORRISON.

CLASPS.—The following is a new and original method of making clasps: Take an impression (in plaster) of the tooth to be clasped; cast into this impression, Melotte's fusible alloy. A piece of clasping material, of suitable width, and long enough to encircle the tooth, with ends soldered, is driven and burnished on to the metal die till a perfect adaptation is secured. The clasp can be opened at any point desired.—J. B. VERNON in *Archives.*

TO RID THE STOMACH OF CHLORIC ACID AFTER CHLOROFORM ADMINISTRATION.—DR. L. MILLIRON, Kimball, Dak., advises the use of coffee without milk or sugar after the administration of chlo-

reform, to aid in unloading the stomach of chloric acid, which forms there and causes headache. As a stimulant for anæmic patients, Dr. L. Milliron, Kimball, Dak., prescribes camph. tr., lavender comp., spts. sulph. ether, equal parts; dose, 15 to 30 drops as often as required.—*Register*.

APPLICATION FOR ARTIFICIAL DENTURES WHEN THE MOUTH IS UNDULY SENSITIVE.—M. MARTIN, of Lille, recommends the following:

| | | | |
|-----------------|---|---|-----------|
| Vaseline | - | - | 3 11 grs. |
| Balsam of Peru | - | | 3 j |
| Powdered Tannin | - | | xv. gr. |

He smears this over the denture before inserting it. It is also a good application for sensitive gums.—*Brit. Jour.*

FILLING ROOT-CANALS.—DR. STOREY has not for many years used anything else but oxychloride of zinc. He uses it first, last, and all the time, and he has not had a single failure in fifteen years,—at least he has not heard of one. He had used oxyphosphate in a few cases, and since the last meeting of the Southern Association he has seen a failure among these. The material gummed and failed to reach the proper point. For getting the oxychloride up the canal he uses a Donaldson bristle from which he has sand-papered the barbs.

STICKY WAX.—Sticky wax, for holding in place clasps and teeth, previous to soldering, is best made of rosin two parts, and beeswax one part. Melt your rosin first, in a tin cup or an old dipper, then add the wax and stir till well mixed, and pour in a basin of cold water. Take up a piece about the size of a walnut at a time, and roll out with your hands on a smooth surface into pencils; care must be taken to keep the fingers moist, or the mixture will stick. This is the best preparation we have ever used, and it may be melted over and over again.—DR. J. DEINELT in *Items*.

LEAD FOR ROOT-CANALS.—DR. H. E. BEACH believes in filling the canal with lead. Those who do not indorse this practice simply have not tried it. The speaker has been filling root-canals with lead for fifteen years, with gratifying success. There is no other metal with which it can be done so well as with lead. His method is to trim the lead down until it fits accurately a hole

drilled through a piece of ivory with the same drill that is used to round up the root-canal, dip in any antiseptic,—he uses compound tincture of iodine,—and drive home. It makes a perfect adaptation.

TREATMENT OF ROOT-CANALS.—Those who wish to can treat and cap pulps, but the writer has served his time at it, and he now destroys and removes the nerve, treats the root, and fills. Many of his root-fillings have been in twelve or thirteen years and are still doing well. After destroying the nerve, he cuts away so that he can go down into the root with a Gates-Glidden drill and clean out to the apex, or as near it as possible, then treats for a few days with a piece of cotton saturated with a mixture of carbolic acid, camphor, tincture of myrrh, and a little chloroform. When satisfied that the root is healthy, he forces a piece of spunk a little larger than a pin-head as far up the canal as he can, and then fills with Justi's cement. When the canal is much enlarged at the apex by absorption, after-trouble can be avoided by being careful not to force the spunk up too far.—DR. A. A. BEVILLE.

STERILIZED SPONGE FOR CAPPING PULPS.—After partially preparing the cavity I apply the rubber-dam and complete the preparation, avoiding, if possible, wounding the pulp, but do not allow an unavoidable wounding of the pulp to interfere with the thorough preparation of the cavity. Having my cavity carefully prepared and my dam adjusted, I next sterilize everything that is directly or remotely connected with the cavity, from this point to the completion of the operation; upon this point it is impossible for me to be too explicit or insist too earnestly, for on this more than anything else depends the success of the operation. Now place a small piece of sterilized sponge upon the point of exposure and fill over this with the oxyphosphate. There is no necessity for using the oxyphosphate very soft; no trouble need be feared from pressure upon the pulp; the sponge protects it against that. After allowing the temporary filling to remain for six months or more I fill permanently, allowing enough oxyphosphate to remain to protect the pulp.—DR. PARRAMORE in *Int.*

TREATMENT OF SECONDARY HEMORRHAGE AFTER EXTRACTION OF TEETH.—After plugging the cavity with lint soaked in liquor

ferri perchloride fort., make a shellac plate and very accurately fit to the surrounding parts and thickly line with equal parts of tannic acid and pulv. gummi tragacanthæ. A piece of Stent's composition is placed on that part of the plate occupying the space whence the tooth has been extracted, the jaws brought into apposition and there retained by a four-tail bandage.

With a view to tranquillize nervous excitability on the one hand, and to diminish the *vis a tergo* on the other, I administer the following prescription :

R Potassii Bromidi, grs. x.
 Extracti ergotæ liquidi, m. xv.
 Aquæ distillatæ, ad. ʒjss.

Draught to be taken at once and repeated after four hours.

The following morning I remove the shellac plate, leaving the plug *in situ*. This, however, I twenty-four hours subsequently remove without any recurrence of bleeding.—DR. L. B. PILLIN.

A METHOD OF OVERCOMING HYPERSENSIBILITY OF A TOOTH.—A patient came complaining of hypersensibility of the second right upper molar. It stood alone, occluding with its fellow below, was slightly loose, had no decay, but so sensitive to heat and cold—on account of the roots being denuded—that eating and drinking was simply a misery. I tried all the means I knew to reduce the sensibility, but without avail. Killing the pulp or extracting the molar were means I hesitated to employ except as a last resource.

The suggestion of wearing artificial teeth did not meet with his approval, by which means the tooth would have been covered with the plate, and would have no doubt improved the situation. I took, as an experiment, cotton-wool and mastic, and tied a strand around the molar; the result being satisfactory. I took an impression of the molar with wax—being preferable to modelling compound on account of the temperature necessary—and made a very thin shell of vulcanite perfectly fitting the tooth to the margin of the gums, leaving the crown exposed for the purpose of articulation.

The shell or overcoat, cemented on with oxyphosphate, has been in wear a month, and has completely frustrated contact with heat or cold. I may say it has proved a success.—H. H. EDWARDS in *Int. Jour.*

DANGERS OF NITROUS OXIDE ADMINISTRATION.—The chief dangers of nitrous oxide administration are due to foreign bodies, such as teeth, stumps, broken instruments and falling into the back of the mouth and being sucked into the larynx by a sudden inspiration.

To guard against these accidents the operator should be careful that each stump is removed from the mouth before the extraction of another is attempted.

Should a stump slip from the forceps into the back of the mouth, the patient's head must be immediately thrown forwards, and the finger swept round the base of the tongue and thus prevent it falling into the larynx.

If, in spite of all our efforts, it be sucked into the larynx, the following alarming symptoms will be noticed. The patient will be seized with a violent spasmodic cough and difficulty of breathing, which is sometimes so great that danger from suffocation is imminent. Under these circumstances tracheotomy must at once be resorted to. If, however, the symptoms are not urgent, the patient must be put to bed and kept under the influence of narcotics, so as to lull the vigilance of the muscles which guard the aperture of the glottis; the foreign substance may then become coated with mucus and expectorated during an effort at coughing or vomiting.—*Brit. Jour.*

USES OF IODOFORM.—To obtain the full advantage of iodoform it is necessary to use the drug in a concentrated form, and we recommend the following preparations:

Iodoform Paste.—Oil of eucalyptus, 20 minims; oil of cloves, 30 minims; creosote, 100 minims.

Into this gum mastic is dissolved to saturation. After filtering through cotton wool the solution should be incorporated with iodoform until the whole becomes a solid mass.

This preparation is always moist and (used with wisps of cotton) is a good permanent root filling for chronic dead teeth, and forms an excellent capping for exposed nerves under a concave disc of metal.

Iodoform Cement.—Iodoform in fine powder, and strong tincture of benzoin; mix into a thick paste.

This preparation should be kept in a wide-mouth stoppered bottle to prevent evaporation.

When mixed with fine cotton on a glass slab it forms an

excellent root-filling for healthy teeth, and sets quite hard. It can also be used as a floor in very sensitive teeth under a metal stopping.

Iodoform Points.—These consist of thick floss silk or cotton thoroughly saturated with iodoform cement, and when dry cut into short lengths and put by for future use as permanent root fillings.—DR. R. D. PEDLEY in *Jour. Brit. Dental Asso.*

SUCTION FOR LOWER PLATES.—Where most of the alveolar ridge has been absorbed—especially the lower—it is often difficult to keep the plate in place, but a firm adhesion may be obtained by the following method:

After your plaster model is nearly dry, mix some plaster very thin, and with a fine camel's hair pencil, build up a half-round ridge, about the width of an ordinary knitting needle, all along the highest part of your model, or what is left of the original ridge, leaving off about a quarter of an inch from the end of the previously marked-off plate, on both sides, or the object will be defeated. Never wet the model, or your plaster will run where it is not wanted, while, when dry, you can guide your plaster with the pencil and build up a neat and even ridge; a very important point in taking the model from the molding sand afterward. The work should be performed neatly and rapidly, adding a little material at a time, till the ridge is finished to your satisfaction; when finally your plate is struck up, and while trying it in, you will be surprised to find how firmly it will adhere, by means of this narrow and continuous air-chamber.

The same process will hold good in rubber plates, but the model should be more thoroughly dried, to prevent the sticky base-plate from injuring the ridge. For troublesome shallow plates, already in the mouth, we would suggest the forming of a hollow ridge by means of an engine bur. We have used this process for lo! these many years, and have always found it a success in even the most desperate cases.—DR. J. DEINELT in *Items*.

METHOD OF MAKING SECTIONS OF TEETH AND BONE WITH THE PRESERVATION OF THE DELICATE PARTS.—The fresh tooth is broken in half and placed in a concentrated solution of mercuric chloride for one hour; then in 30% alcohol. After twenty-four hours this is replaced with 50% alcohol, and at the end of another

twenty-four hours by 70%. After twelve hours the tooth is placed in a mixture of 100 c. c. of strong alcohol and 2 c. c. of the tincture of iodine, for the removal of the black precipitate of mercury. This requires about twelve hours. The iodine is then removed by washing in strong alcohol, which is renewed as long as it becomes colored.

The specimen is now to be stained. For this purpose, the author recommends either an aqueous or alcoholic solution of borax carmine. The specimen is removed from the alcohol, washed in water, frequently changed, for half an hour, and then placed in the staining fluid. The aqueous fluid requires one to two days; the alcoholic fluid two to three days for staining. When the staining is complete, place the specimen in acidulated alcohol [70% alcohol 100 c. c., HCl. 1 c. c.] for fifteen minutes, double this time in absolute alcohol, and finally in an ethereal oil for twenty-four hours or more.

On removing the specimen from the oil, wash quickly in xylol and place in chloroform for twenty-four hours; then in a solution of chloroform and hard Canada balsam for twenty-four hours; then add to this solution as much of hard balsam as it will take up, and pour the specimen with as much of the balsam as will cover it into a porcelain dish. Place the dish on a water-bath and heat gradually to 90° C.; keep at this temperature until a sample of the balsam becomes hard like glass upon cooling.

Thin slices are now cut off with a fine saw, wet with cold water. These are ground and polished in the usual manner, and finally mounted in hard balsam dissolved in chloroform.—*Am. Monthly Micro. Jour.*

A NEW CROWN.—Until lately, when treating bicuspid which have lost the outer wall, I have used what may be called a ring pivot, consisting of a plate tooth, soldered to a band of gold passing round the inner cusp, suggesting by its shape a signet ring. A number of these crowns, which were put in seven, eight, and ten years ago, are still doing good service.

Theoretically, there is a weak point in this form, the supposition being that decay is accelerated by the lodgment of food between the band and tooth; but, practically, I have never found this to be the case, as I usually line the band with soft gutta-percha.

Perceiving that there was no advantage in retaining the whole of the remaining cusp, I have within the past three years made the following modification: I now cut the cusp about half off, making the band the same height as the tooth. The gold is then carried over and entirely encloses the portions cut off. I then introduce a wedge pin between the cup and the porcelain face, which, penetrating into the nerve canal, not only gives stability and strength to the crown, when completed, but also keeps it firm while the amalgam is hardening.

Immediately before placing the crown in position, I fill the unrecut nerve canals with soft amalgam and then varnish the gold to prevent the injury by mercury. This done and the crown in place, I push the wedge home, employing if necessary, a mallet for the purpose. The band being thus drawn to the tooth, amalgam is packed into the open space on either side of the wedge and small wads of Japanese paper assist in forcing the amalgam into position. When the cavity is full the operation is complete, and the patient has a good serviceable tooth.

If impressions of the prepared root and the bite are taken at the first sitting, the work may mostly be finished without the patient, his presence being simply required for the final fitting and placing in position of the crown.—W. ST. GEO. ELLIOTT in *Dental Record*.

MOISTURE-TIGHT GUTTA-PERCHA FILLINGS.—For this and the two subsequent "Hints" the writer is indebted to Dr. J. G. Templeton, of Pittsburgh, Pa., during a recent casual conversation:

Dissolve common resin in chloroform, and keep it the consistency of varnish. After properly preparing the cavity, wrap a very little cotton on an excavator, dip in the solution, and neatly varnish the floor and walls of the cavity. Quickly pack the suitably-softened gutta-percha with a cold plugger, and trim the borders with thin hot instruments.

Aluminum Plates.—In swaging a dental plate of aluminum it is of the first importance to keep the plate from contact with either the zinc die or the lead counter, and for that purpose use the thinnest and best silk tissue-paper obtainable. Anneal the plate often by merely burning off a coat of oil. Place the tissue-paper on both sides of the plate, and keep a close watch on the

paper in order to make the immediate substitution of fresh paper for the sheet or sheets that may have become broken during the swaging.

Aluminum Plates with Vulcanite Mountings.—Light, durable, strong, cleanly, and sightly, these dentures are found to be very satisfactory to both the patient and the dentist. To this end it is necessary that the plate be kept from casual contamination while the process of construction is going on. When, therefore, by the means just described a perfectly clean plate has been struck up, a sharp-pointed graver is used to scratch and to spur in opposite directions the ridge surface which is to be covered by the rubber; and if the roughing be rightly done, it is both needless and unsightly to perforate the plate, for the adhesion will be certain and secure.

After the teeth have been waxed upon the plate, and just before investing the piece, varnish the plate on both sides with sandarac varnish. When vulcanized, be careful not to disturb the varnish until the vulcanite has been properly polished. Then immerse or wash the denture in alcohol, which will remove the sandarac and also improve the appearance of the vulcanite.—W. S. H. in *Cosmos*.

GOLD INLAY.—My method of making these inlays is as follows: Prepare the cavity by making all walls as nearly straight up and down as is consistent with the shape of the cavity on all proximal surfaces, and wherever it is necessary to cover a masticating surface bevel the edges of the tooth well, so that your gold piece may rest upon the enamel slightly, and allow a more perfect polishing and finishing, besides gaining strength from the support. Take an impression of the tooth, and if the cavity therein be a proximal one use its next neighbor as well, to serve as a guide in shaping. Run a cast in plaster, upon which build out in wax such an amount of contour as has been lost, and which it is desirable to restore to give the cast the shape of a perfect tooth. The impression, unfortunately, cannot always be taken with such accuracy as is desirable, but can always get the general shape of the tooth and outline of the cavity, so that, with a little measurement, such inaccuracies as may exist can be remedied by making the piece slightly larger than the surface to be covered, and trimming to proper size and shape by actual trial in the mouth.

Having thus perfected your cast to a pleasing outline, the next step is to run a die of tin, babbitt, or other suitable metal, in the usual manner, and over this swage a piece of gold plate about No. 28 in thickness, sufficiently large to cover the surface of the cavity, trim and shape to fit the outline of the cavity as nearly as possible.

Solder inside little platinum pins or pieces of gold, of any size and shape your judgment may dictate, in order to hold the gold in place most securely when fastened, and at the same time not interfere with its adjustment by touching the walls of the cavity.

Either cement or gutta-percha may be used in fastening in the mouth. If the latter, fill the cavity not quite flush with the edges, hold the piece in the flame of a spirit lamp with pliers until warm enough to soften the gutta-percha, and press in place, afterward smoothing off all excess at the edges with a pledget of cotton saturated in chloroform. In using cement, mix a little thinner than for filling purposes.—DR. G. V. I. BROWN in *Dental Review*.

Books and Pamphlets.

DENTAL CHEMISTRY AND METALLURGY. By CLIFFORD MITCHELL, M.D. Second Edition. Chicago: W. T. Keener, Publisher. Price, cloth, \$2.50.

This is one of the Dental College series of Text-Books, approved and adopted by the Dental Faculty Association. This second edition has been thoroughly revised and rewritten. The author has profited by the many kindly suggestions made after the appearance of the first edition and now presents a comprehensive and thorough treatise on chemistry, inorganic and organic, for dentists and dental students. Among the many changes we notice that considerable relating to Electricity, Percentage Solutions, Specific Volume, etc., has been added to the chapter on Physics. A chapter on Chemical Philosophy has been substituted for one on Chemical Theory and is fuller in details and explanations. The chapter on Organic Chemistry has been brought up to date by the addition of new alkaloids and antiseptics. Much new matter has been added to the chapters on Laboratory work with many simple and progressive experiments illustrating the practical application of chemical principles to dentistry. The chemical work in the dental laboratory of refining gold, testing amalgams, manipulating vulcanite, compounding rubber, qualitative and quantitative analysis of amalgam alloys, analysis of cements, testing rubbers, etc., is treated at length and fully described.

That a knowledge of dental chemistry is a requisite of the progressive dentist every one knows and in the book before us may be found all the information on this subject that is desired. The type being extra large is not tiresome to the eyes and the heads of subjects being printed in bold black type is an aid in several ways. That the work has been accepted and adopted by the Dental Faculties is evidence of its worth and we predict for it a large sale.

A TEXT-BOOK ON ANIMAL PHYSIOLOGY with introductory chapter on General Biology and a full Treatment of Reproduction. For students of Human and Comparative Medicine and of General Biology. By WESLEY MILLS, Professor of Physiology in McGill University and Veterinary College, Montreal. 500 illustrations. New York: D. Appleton & Co., 1889. Price, cloth, \$5.00; sheep, \$6.00.

This volume bears evidence upon every page of the influence of comparative and experimental methods. There is no doubt that there is room for a work attempting to vitalize the dry facts of physiology with suggestions from general biology, philology, embryology, pathology, etiology, philogony and comparative morphology. But little of comparative anatomy, physiology and embryology has been given in our medical colleges. This, however, is important to gain the best knowledge of the human economy, and a work of this kind placed in the hands of students, would, it seems, be the means of doing much good. In Dr. Mill's book the didactic purpose is constantly prominent and the materials are freely but judiciously selected from the whole range of recent biological literature. The illustrations which are made to take the place of detailed anatomical descriptions, are liberally and effectively employed. The first 146 pages are devoted to a review of the fields of general biology, embryology, physiological chemistry, and the methods of research. The remainder of the work presents the several systems in the usual sequence with illustrations drawn from the comparative domain. The book is neatly printed and bound and deserves a large sale.

A TEXT-BOOK OF MATERIA MEDICA, PHARMACOLOGY, AND SPECIAL THERAPEUTICS. By I. J. M. Goss, A.M., M.D., Prof. of the Practice of Medicine in the College of Eclectic Medicine and Surgery, Atlanta, Ga. Second Edition, revised. Chicago: W. T. Keener, Publisher. Price, cloth, \$5.00.

This work is designed as a text-book for the student, and as a ready reference for the practitioner. It is a compend of materia medica and therapeutics written with especial reference to the more direct or positive action of medicines, after the eclectic system of treatment. Eclecticism in medicine signifies to choose or select from all other systems of medical practice whatever may be thought best adapted to the relief and cure of the sick. Eclectic physicians not only claim that they have the right to choose, but that they have chosen the best remedies from all other systems of medicine. The author's aim has been to put forth, in small compass, a work which will embrace the essential therapeutic truths of the healing art and to avoid speculative and

hypothetical theories in long detail. A short essay upon pharmacy has been added as it is deemed essential that physicians should know how to prepare most of their remedies. There is to be found much originality derived from 45 years extensive practice. The plan of grouping remedies together according to physiological and therapeutical action, has been retained in this volume. Some unofficial preparations and crude drugs have been noticed and their therapeutic action fully given, as far as known. The botanical peculiarities of many of the indigenous remedies are given so that those who are in localities where the plants grow, may gather and tincture them in their fresh state which is often essential to their purity. The work has been brought down to the present time by the addition of new remedies, etc., and its 571 pages of well written matter is valuable to every practitioner.

ALDEN'S MANIFOLD CYCLOPEDIA.—The seventeenth volume of Alden's *Manifold Cyclopedia* extends from Gogo to Haliography, and compares favorably with its predecessors in its skillful editing, handy form, excellent typography and binding, and its remarkable economy in cost. The publisher formerly announced the work to be published in "30 or more volumes"; now, it is definitely promised to be completed in 40 volumes, and they are promised hereafter at the speed of at least one volume a month. Besides covering the usual ground of a universal *Cyclopedia*, it includes also an unabridged dictionary of the English language, every important word to be found in Webster's or Worcester's, and not a few besides which have grown into the language since their latest revision. The first seventeen volumes in cloth binding are offered for \$8.00, or for \$11.40 in half Morocco. A specimen volume may be ordered in cloth for 60 cents, or in half Morocco for 85 cents, to be returned if not wanted. JOHN B. ALDEN, Publisher, New York, Chicago or Atlanta.

Our Aftermath.

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LAURA (to her best man)—"There, uow, Henry dear, don't saw on that violin any more; it sets my teeth on edge." Bub (from behind the door)—"She means on the edge of the washstand; I saw 'em there last night."—*Yonkers Gazette*.

ANXIOUS MAMMA—"Little Dick up-stairs, crying with the toothache." Practical Papa—"Take him around to the dentist's." "I haven't any money." "You won't need any money. The toothache will stop before you get there."—*New York Weekly*.

QUEEN tooth-picks come largely from France, which possesses the largest factory in the world. This factory, which is located near Paris, was origin-

ally started to make quill pens; but when these went out of use, the proprietor turned it into a tooth-pick mill, the present annual output of which is 20,000,000 quills.

ABERNETHY AS AN ADVERTISER.—Advertising doctors are by no means modern developments. The celebrated surgeon Abernethy, and others of his day, were regular advertisers in *The Times*, and even earlier still the announcements of regular physicians were to be met with in the public press.—*Hospital Gazette*.

EARLY PROMISE.—Wife: "Dear, what do you think baby will be when he grows up?"

Dear: "A man, I suppose."

Wife: "Oh, you're very witty, aren't you? But I mean what profession do you think he will adopt?"

Dear: "Well, from the appearance of my new silk hat, which you gave him to play with this afternoon, I think he will be a dentist."

RETURN TO LATIN—Dr. Fabriani publishes in *Il Raccoglitore Medico* a letter addressed to the physicians of the whole earth, urging them to return to the mother-tongue of science, the Latin. He thinks that the period at which it was abandoned as a scientific medium of communication is comparatively so recent that there is yet hope of reinstating the language. Unfortunately, Dr. Fabriani has made the mistake of writing his appeal in Latin, so that the letter must remain as a sealed book to most of those into whose hands it may fall, thereby also furnishing one of the strongest arguments against the carrying out of the author's suggestion.

A SERIOUS TIME.

Put away the beefsteak Mollie;
 Chop the cutlet into hash;
 Turn the solids into salads;
 Crush potatoes into mash.
 Bake the rice in little patties;
 Have the mush with dressing mixed,
 For the hour is fraught with danger—
 Papa's teeth are being fixed.

Mix the festive pancake batter;
 Chop the lobster into bits;
 Fry the soft and plastic doughnut
 That the grinder never grits;
 Cut the bread in yielding slices,
 Lay an oyster in betwixt—
 Banish all the pleasant solids—
 Papa's teeth are being fixed.

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CONTENTS.

| CONTRIBUTIONS— | PAGE |
|--|------|
| The Artistic Adaptation of Artificial Dentures, Illustrated, <i>By Dr. L. W. Comstock.</i> | 1 |
| Electricity as Applied in Dentistry..... <i>By Dr. Frank Creager.</i> | 22 |
| A Bit of History—Combination of Continuous Gum and Rubber, <i>By Dr. L. P. Haskell.</i> | 25 |
| Report of Cases in Orthodontia, Illustrated, <i>By E. H. Angle, D.D.S.</i> | 27 |
| Dental Transplantation and Replantation... <i>By H. A. Smith, D.D.S.</i> | 29 |
| COMPILATIONS— | |
| Some Affections of the Gums, <i>By Frank Lankester, L.R.C.P., M.R.C.S., L.D.S.</i> | 37 |
| EDITOR'S SPECIALS— | |
| Volume IX..... | 39 |
| Portrait of Dr. Geo. W. Keely..... | 39 |
| WHAT WE SEE AND HEAR..... <i>Edited by L. P. Bethel, D.D.S.</i> | 40 |
| SOCIETIES— | |
| To the Members of the Dental Profession..... | 50 |
| Chicago Dental Society..... | 51 |
| BOOKS AND PAMPHLETS— | |
| A Compendium of Dentistry for the Use of Students and Practi- tioners | 53 |
| The Popular Cyclopeda..... | 54 |
| Diet Tables..... | 55 |
| AFTERMATH— | 56 |

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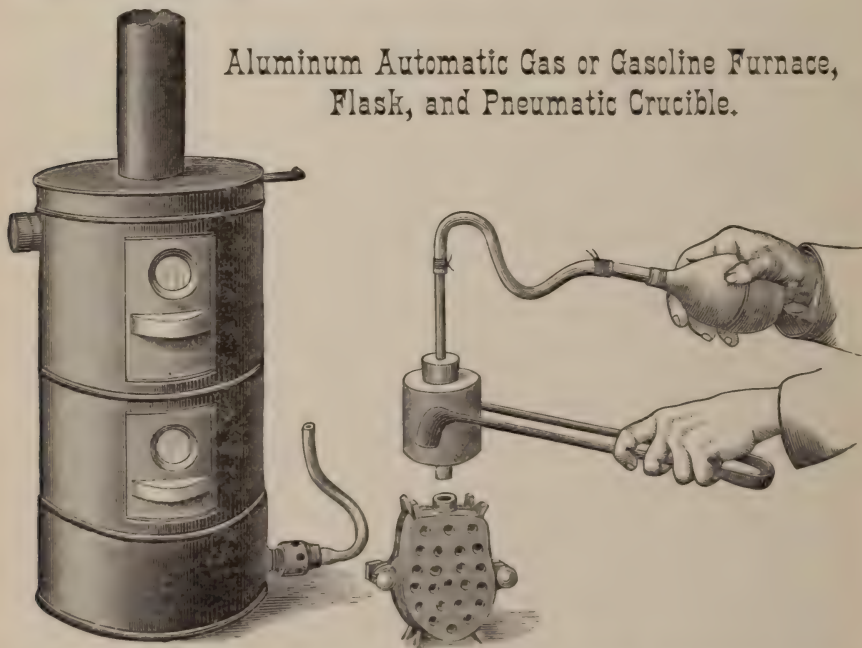
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| Rubber Bulb, with connections and tubing | - | - | - | - | - | 1.00 |
| 2 Iron Flasks, fitted to Pneumatic Crucible at \$1.25 | - | - | - | - | - | 2.50 |
| 2½ oz. prepared Aluminum Base No. 1, at \$3.00 | - | - | - | - | - | 8.00 |
| 4 oz. prepared Aluminum Base No. 2, at \$1.00 | - | - | - | - | - | 4.00 |
| 1 oz. prepared Aluminum Solder | - | - | - | - | - | 1.50 |
| 12 Quart Can Investing Material | - | - | - | - | - | 1.75 |
| 3 Open Battersea Crucibles | - | - | - | - | - | 1.00 |
| 1 pair 14-inch Steel Crucible Tongs | - | - | - | - | - | .75 |
| Boxing | - | - | - | - | - | .50 |
| Outfit Complete, for Gas Burner | | | | | | \$50.00 |
| Outfit Complete, for Gasoline Burner | | | | | | 52.00 |

These Aluminum Cast Bases have been exclusively employed in the practice of the inventor, Dr. C. C. Carroll, of Meadville, Pa., during the past three years, with the most perfect success and satisfaction.

Testimonials of the Profession.

DR. W. H. EAMES, of the Missouri Dental College, St. Louis, says: "Dr. J. G. Harpe, Professor of Mechanical Dentistry in this College, has made several Aluminum Cases successfully by your process, with the outfit which the College got of you. He cast a full upper plate for me which is very nice indeed."

DR. CHARLES O. BEAM, of St. Catharines, Canada, says: "I have been very successful in the manipulation of your Aluminum outfit, and have cast several plates, which are now being worn by my patients with great satisfaction in every case, and I must say that I think your method one of the greatest strides toward perfection in mechanical dentistry yet made.

"The entire process is so simple, as well as practical, and applicable in every case in prosthetic dentistry."

DR. A. O. HUNT, Professor of Mechanical Dentistry in the Iowa State University, in his remarks before the American Dental Association at Niagara Falls, said: "The Association to-day had seen true scientific work done by Dr. Carroll in his clinic demonstrating his practical methods of casting Aluminum dentures, that delighted him, and he believed that it was the greatest advance in mechanical dentistry that this generation of dentists had seen."—*Independent Practitioner*, January, 1888.

PLATTSBURGH, MO., Dec. 5th, 1887.

ALUMINUM DENTAL APP. CO.:

Dear Sirs:—I desire to say that I am having very good success casting Aluminum plates with the outfit I bought of you. I am well pleased with your method and would not be without it.

J. F. DEBERRY.

TOLEDO, O., April 5, 1888.

DR. C. C. CARROLL, Meadville, Pa.:

Dear Sir:—For the encouragement of other members of the dental profession who may want to use your Cast Aluminum method and outfit, I desire to say, since I introduced your method into my practice in August last I have had most satisfactory success in setting Aluminum plates, and in all cases thus far perfect adaptation to the delight of myself and patients. I have used it in the most difficult cases when I was unable to get a satisfactory result until I made use of your Cast Aluminum plates. The results thus far have been most complete and all I could wish. I hope you may be successful in introducing it to many who like to see good results from their labor.

I am respectfully yours, C. H. HARROUN, M.D., D.D.S.

"Just the thing to give several of my patients," said a prominent dentist on seeing the

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FOR THE

IDEAL BRUSHES



A beautiful and serviceable toilet requisite. Brushes hang up, always in place, and outlast two ordinary brushes, because *dripping from the head*, the bristles quickly dry, greatly increasing their life and elasticity. These Brushes,

The Prophylactic Tooth Brush,
and the Florence Dental Plate Brush,
are the dentist's standards—perfect cleansers.

A holder gratis with a dozen brushes. 4 styles, 25c., 50c., 75c., and \$1.00 each. For particulars write to your Depot, or to

FLORENCE MANUFACTURING CO., Florence, Mass.

80 PER CENT. PROFIT.

Painless Dentistry.

Please note the following Testimonials, which are a sample of hundreds received from every part of the United States.

DR. E. KNAPP, Evansville, Ind.—Your "Local Anæsthetic," for painless extraction of teeth, is a success.

DR. E. M. WARNE, Waltham, Mass.—Your Anæsthetic does all you claim it will do.

DR. A. H. LEE, Washington, D. C.—Your Anæsthetic is a wonderful article, and in my hands has proven a success.

DR. J. E. BREEDING, San Diego, Cal.—I use your Anæsthetic daily, and with perfect success.

DR. E. F. WILSON, Rochester, N. Y.—Your Anæsthetic is the best I have ever used. Success.

DR. H. C. MORRISON, Morristown, O.—My patients express themselves much pleased with your Anæsthetic.

DR. A. H. CHANDLER, Sturgeon Bay, Wis.—I find your "Local Anæsthetic" all you claim it to be.

DR. THOS. M. TALBOTT, Washington, D. C.—I have tried your Anæsthetic until I am satisfied it will do all you claim for it.

A 2-Oz. Bottle of Dr. E. T. Barr's "LOCAL ANÆSTHETIC" sent prepaid for \$1.00, and guaranteed to make Teeth Extracting painless, or money refunded, by Dr. E. T. BARR, Manufacturer and Proprietor, Bowling Green, Ky.

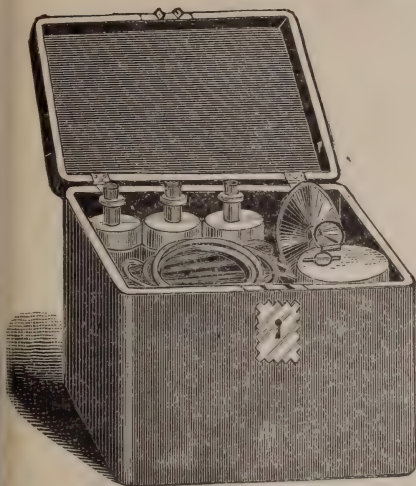
Or to RANSOM & RANDOLPH, Toledo, Ohio.

DIRECTIONS.—Dry the gums thoroughly, then apply the "Anæsthetic" to the gums around the tooth with a pledget of cotton; let it remain for one minute, then instantly remove the tooth.

TO WHOM IT MAY CONCERN:

We, the undersigned citizens of Bowling Green, Ky., take pleasure in saying that we have known Dr. E. T. Barr since he came to this city about ten years ago, and know his reputation to be that of an esteemed gentleman and a popular dentist, and a thoroughly trustworthy business man: John E. DuBose, City Attorney; J. F. McElroy, M.D.; E. H. Porter, Postmaster; H. E. Jenkins, Mayor; G. S. Hollingsworth, City Clerk; G. E. Townsend, Druggist; P. J. Potter & Co., Bankers.

Hayes' Process of, and Apparatus for Generating and Administering Anæsthetics.



No. 3. Surgeon's Portable Case.

The wonderful superiority of this new Process and Apparatus over and above everything else in use is manifest:

1. In its absolute safety, which consists in producing a light, agreeable, attenuated vapor, having the necessary properties to support respiration and life, and in putting the regulation of the percentage of the narcotic under the complete control, in every respect, of the administrator, so as to be adapted to meet the wants or needs of every patient in all the various stages of Anæsthesia; and, also, in having a reliable thermometer attached to the apparatus, by which the capacity and power of the atmosphere to receive, contain and convey a certain percentage of any given narcotic in the Anæsthetic, may be known at all times, while being administered; and further, not only its safety, but its efficiency, consists in having a water bath with heating power combined, by which the tendency to lower the temperature of the vapor by the continuous passage of the air through and over the narcotic, is not only counteracted, but by which an increase of the temperature of the vapor is obtained, so as to meet the ever-varying wants of the patient perfectly in the advancing stages of Anæsthesia.

2. In its desirable effects, being entirely pleasant in respiration and rather enticing than otherwise, non-irritating, to the fauces, the epiglottis, the mucous membrane of the bronchial tubes, or the air cells of the lungs, and being free from producing nausea with the consequent fearful results of vomiting, asphyxia, syncope or death.

3. In its adaptation to a uniform evaporation of all the elements in any narcotic admixture.

4. In its cleanliness, being perfectly clean at all times and under all circumstances.

5. In its convenience, the narcotic chamber being always charged and ready for use, and the apparatus being suitably suspended with pulleys and weight, by which it is conveyed out of the surgeon's way when operating, or enclosed in a neat surgeon's portable case, for use out of office, which also contains three suitable bottles, one for the narcotic, and two for stimulants, which should always be convenient of access during a surgical operation.

6. In its cheapness, or the saving of the narcotic, and the consequent annoying effects of its waste in the operating room.

We commend this new "Process of Anæsthetics" with its appropriate Apparatus, to the Medical and Dental professions, with the hope that, as you value life and health above everything else, you will not endanger the health and the lives of your patients, nor throw yourselves liable to prosecution for mal-practice or criminal neglect, in the administration of an anæsthetic by the ordinary methods.

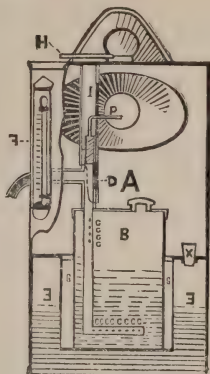
The entire Apparatus, put up in a neat Portable Surgeon's Case, with perpetual office rights to use the Process, is sold at \$50.00.

The same, without Portable Surgeon's Case, is sold at \$45.00.

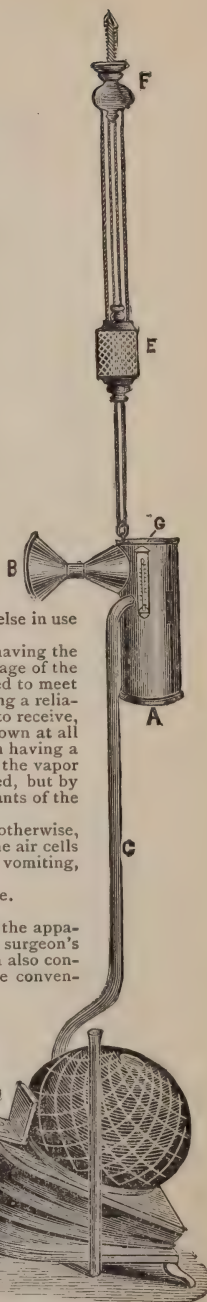
Any Surgeon who has a large practice, requiring the use of an Anæsthetic, can save the cost of his outfit for this purpose in one year's time by the use of our Process and Apparatus, as he saves fully three-fourths of the narcotic, he would use by any of the ordinary methods of administering ether or chloroform, besides having all the other advantages which we claim for our process.

The Generator (A) and Face Piece (B) are made of brass and nickel-plated, and are suspended on pulleys with screws, which are also nickel-plated, and are to be attached to the ceiling. The whole Apparatus is made and finished in a style so as to be an ornament to any office.

All orders must be accompanied with the money, or draft for the amount, and directed to



No. 2. Sectional View of Generator.



No. 1. Apparatus Complete.

HAYES ANÆSTHETIC CO.,

Or your Dealer.

804 Penn Avenue, PITTSBURGH, PA.

This Apparatus is constructed with special reference to the use of Dr. Hayes' Hypnotic, but can be made for the use of ether, chloroform, or any other suitable narcotic.

N. B.—Send for descriptive pamphlet.

For Sale by RANSOM & RANDOLPH, Toledo, Ohio.

THE SNOW & LEWIS DOUBLE-END

Automatic Plugger.

This instrument gives the backward, or pull, blow as well as the ordinary direct, or thrust, blow. The mechanism of the Snow and Lewis Plugger, which is so well and favorably known, has been retained in the double-end pattern: the modifications required being very slight, and the new instrument will be found

Equal in Power and Effectiveness to the
Original Pattern.

A few changes have been made in its outer form. The socket-piece has been shortened, and the small section of the case has now a hollowed outline, fitting the fingers and enabling them to grasp the instrument more securely. The necessary increase in length of the plugger is so slight that it will not be found an objection to its use as a direct-action instrument.

The force of the blow is regulated by turning the milled ferule on the "back action" end of the case, thus compressing the impelling spring.

The engravings show the instrument full size.

Plugger points for the old pattern of the Snow & Lewis Automatic are used in the direct end, and special curved points of approved shapes are used in the "back-action" end.

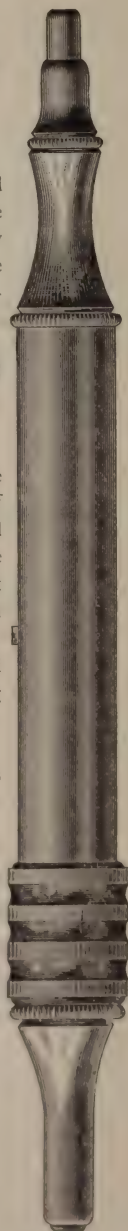
PRICES.

Snow & Lewis Double-End Automatic Plugger, . . \$9.00
Back-action Points for set of 12, 5.25

PRICES FOR DIRECT-ACTION POINTS.

Snow & Lewis Plugger Points, per dozen, \$3.50
Set "L" Auto. Plugger Pts., Nos. 1,2,3,5,6,7,13,14, ea. .50
Set "L" Auto. Plugger Pts., Nos. 4,8,9,10,11,12, each, .75
Set "L" Auto. Plugger Pts., per set of 13, 8.50

Manufactured by the
BUFFALO DENTAL MFG. CO.
BUFFALO, N. Y.



NEW!**NEW!****NEW!**

RAND, McNALLY & Co's

MODEL ATLAS OF THE WORLD!

"New, you say? What is there new about it?" Just read on.
It opens with an entirely new history of the

FLAGS OF ALL NATIONS,

with each flag printed in its proper colors.

It contains Portraits, Autographs and Biographies of the Signers of the

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Besides this, it embraces a handy, yet complete Atlas, with 280 fine Maps, Diagrams and explanatory tables, and an Encyclopedia of Useful Information on all subjects of interest to Farmers, Merchants, Housekeepers, Young Folks and the public in general.

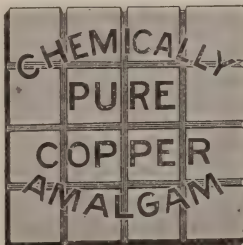
It contains over 500 pages, and

COSTS ONLY 50 CENTS.

Agents wanted. Sample copy and outfit, postpaid, for 50 cents.

Address CONTINENTAL PUBLISHING CO.
148-154 Monroe St., Chicago.

This Amalgam is composed of chemically pure copper and re-distilled mercury, compounded by a process which entirely precludes the presence of other metals, insuring a superior and uniform article. Unlike the coppered alloys a pure and clean copper amalgam does not stain a tooth, but only becomes itself discolored upon its exposed surface. Its extreme plasticity,



even when squeezed very dry, renders its manipulation easy and its peculiar freedom from the spheroidal tendency makes it a reliable material for the filling of many classes of cavities in which other amalgams would be unreliable, including buccal cavities in molars and the shallow attenuated approximal cavities in bicusps and molars.

PREPARED BY

Price, per oz., \$2.00.

W. B. AMES, D. D. S.,
70 State Street, CHICAGO, ILL.

DISCOUNTS TO DEALERS.

For Sale by RANSOM & RANDOLPH, Toledo, Ohio.

THE PUBLISHING AND PATENT OFFICES OF THE SCIENTIFIC AMERICAN.

Perhaps some of our readers have visited the extensive offices of the SCIENTIFIC AMERICAN, at 361 Broadway, New York, but many have not, and to such the following account may be of interest. A correspondent who recently had this pleasure informs us that he was greatly surprised at the magnitude of the establishment. It suggested to his mind an enormous insurance company or banking house. At the main office, which is principally devoted to the patent business—forming as it does so important a part of the establishment—may be seen the members of the firm and their able corps of examiners. Ready access to the principals is afforded to every one; and here may be seen inventors from all parts of the country showing their models and drawings, and explaining their inventions. The models left by inventors form a large and interesting collection, and are kept in a room by themselves. The large corps of draughtsmen who prepare the patent drawings are for the most part experienced mechanics, electricians, or engineers, some of them having been connected with the U. S. Patent Office. Most of the correspondence is carried on by type writers, and this necessitates a separate department, where a number of experienced female type writers and stenographers are constantly employed. The dark room, where the photographs of the patent drawings are copied, and where the photographs for the architectural department are developed, is also on this floor. On the floor above may be found the editorial rooms, compositors' and subscription room, and the engravers' department.

The Architectural Department occupies the top floor, and here may be seen the manager of this department, and also a number of draughtsmen at work preparing the plans and general designs for the ARCHITECT AND BUILDER edition of the SCIENTIFIC AMERICAN, which is published monthly and has attained a widespread circulation. The printing of the papers is carried on in a separate building. At the entrance of the main office, which alone occupies a floor space of 60 by 165 feet, may be seen one of Prof. Draper's remarkable recording barometers, with which instrument a complete record is kept of the atmospheric changes. This barometer was built specially for the SCIENTIFIC AMERICAN, and it is a remarkably fine and sensitive as well as a very expensive instrument.

Some idea may be had of the extent of the business done at the office of the SCIENTIFIC AMERICAN when we state that over one hundred persons are employed by MUNN & Co. on their several publications and in their extensive patent departments.

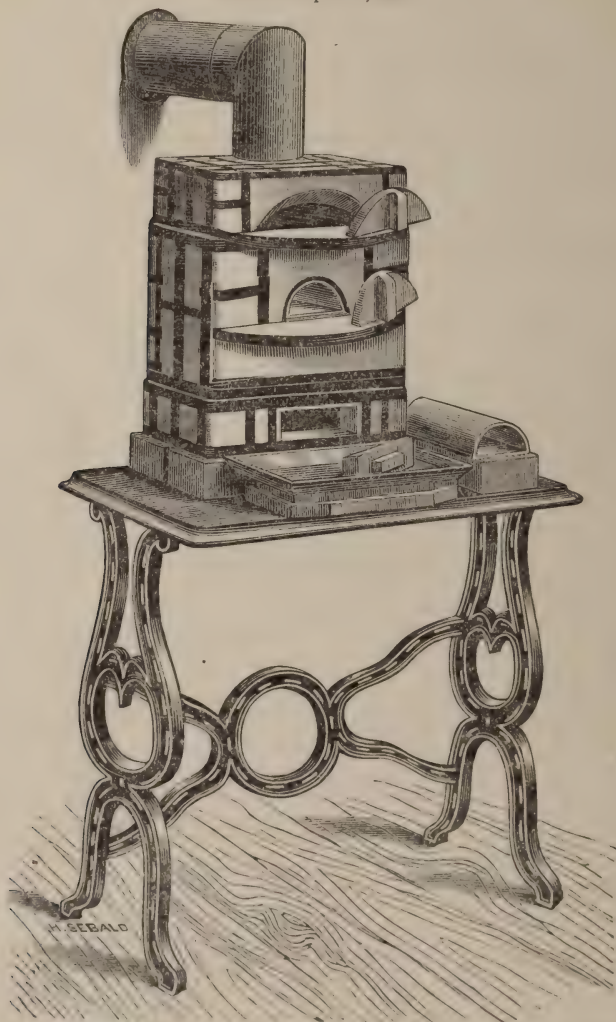
DR. TEES'

LILLIPUT FURNACE

FOR CONTINUOUS GUM WORK,

And for Making Blocks for Plate or Rubber Work from Plain Teeth.

Patented April 11, 1882.



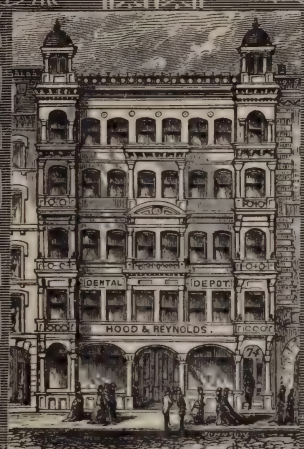
Size fifteen inches high, twelve inches wide and eight inches deep. *Coke fuel.* The heat comes up quickly, noiselessly and with certainty, and will fuse Continuous Gum Body within one hour after the fire is kindled and in thirty-five minutes when the draft is very strong. It has been in the market three years and is now used by dentists in nearly all of the civilized parts of the earth, and no complaints have yet been received about it. A Book of Instructions is part of the outfit and is so explicit that a dentist can master the details without personal instruction.

Allen's Continuous Gum Work was introduced about the year 1851 by Dr. John Allen of New York. It is considered the purest and most life-like of all artificial dentures. It is made of a swaged platina plate with plain teeth—made for the purpose by tooth manufacturers—soldered to it. A mineral compound called Body, in a moist state, is applied around the necks of the teeth and upon the lingual portion of the plate, and with small spatulas carved to imitate the contour of the gums. After being fused in the furnace, a thin coat of Gum Enamel is spread on and fused also, making a beautiful imitation of the gums.

Price of Furnace with appurtenances and Book of Instructions, \$31, boxed.

With the Furnace also order 1 oz. of Body, \$1.50. Three shades of Gum Enamel, \$3.75, One pound of Asbestos, 38 Cents, and a Set of Spatulas, \$1.00. Send money order and they will be shipped by fast freight.

For Sale by **RANSOM & RANDOLPH**, Toledo, Ohio.



HOOD AND REYNOLDS DENTISTS PURE GOLD FOIL



74 TREMONT STREET
BOSTON.

J. HOOD. SH. REYNOLDS

GOLD CYLINDERS.

Two Patents Sept. 19, 1876. Patent Sept. 25, 1876. Patent April 17, 1877.

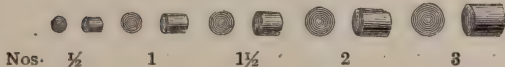
Style A.

Flattened.



Style A.

Loose, and can be used as Pellets.



Style B.

Loose, but more compact than Style A.



Style C.

Compact, but not Hard, used as Cylinders only.



Nos. 2 3 4 5 6

STYLE A, FLATTENED.
Is the form most generally used.

We also make Style C in tin and gold. In making them a sheet of No. 4 gold and tin are rolled together, the gold on the outside. The same numbers are made as the Style C gold cylinder

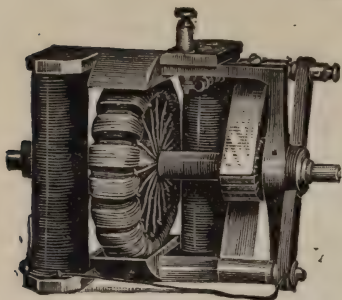
These numbers are to denote that No. 1/2 is a half sheet of No. 4 Gold Foil cut into strips and rolled into cylinders. No. 1, one sheet; No. 1 1/2, one sheet and a half; No. 2, two sheets, &c.

| | | | |
|---------------------------|--------|---|---------|
| Price, per 1-8 ounce..... | \$4.00 | Price, per 1 ounce..... | \$30.00 |
| " " 1-2 "..... | 15.00 | In lots of 2 ounces or more, per ounce..... | 29.00 |

ELECTRIC MOTOR AND BATTERY

FOR THE DENTAL ENGINE.

Patented Oct. 12, 1886.



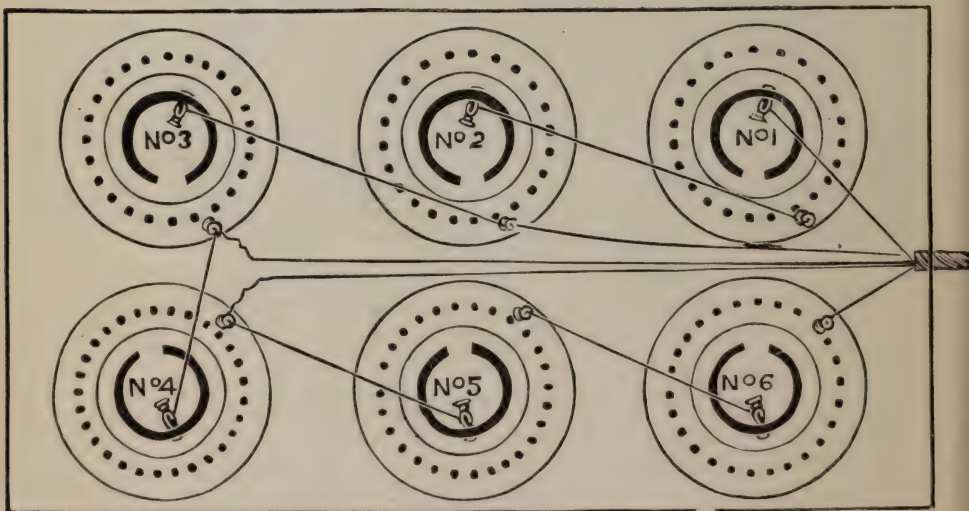
MOTOR.

By a special arrangement with the manufacturer we now offer the Detroit Motor Company's Battery and Motor, in the belief that they will meet the requirements of operators who prefer to run their engines by other than foot-power.

The advantages claimed for the Motor are: It is very light, weighing only three and one-half pounds; it is very strongly and substantially made; it will supply any amount of power required in operative dentistry; it will run backward equally as well as forward; it is instantly reversible; it is

easily started; it has no dead centers.

The Battery, which consists of six cylindrical cells, each six inches in diameter by eight inches deep (inside measurements), placed in a neat box, requires but little attention. Except when necessary to change the fluids, it need not be touched. The cost per hour for actual work is very little, and there is practically no consumption of material when the Battery is at rest.



BATTERY.

The Battery is run by two fluids, easily distinguished by their colors. To charge the Battery, three and one-half gallons of the red fluid, for the cells, and one gallon of the white, for the porous cups, are required. The fluid in the porous cups should be changed after say seventy-five to one hundred hours of work; while that in the cells will bear from three to four hundred hours' actual service before becoming exhausted. Hence, four gallons of the white fluid will be used before the red fluid (three and one-half gallons) needs renewal.

A Motor Stand and a Switch-Board, by the aid of which the operator has full control of the Motor and Battery, accompany them and are included in the price.

THE S. S. WHITE DENTAL MANUFACTURING CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

The Stand for carrying the Motor was devised with special reference to the convenience of dental practitioners. With it the operator controls the position of the Motor when in use. It is solid and easily adjustable, with an arm which can be raised or lowered or swung around at pleasure.

The Motor is placed at the end of the arm, giving the full advantage of the swing, which would not be available if an upright support alone was used. The conducting wires are carried up to the Motor on the inside of the upright column, thus placing them out of the way.



SWITCH-BOARD.

The Stand was designed particularly for use with the S. S. White flexible arm, as affording superior advantages for motor use. The best position for it for most dentists is on the side of the chair opposite that on which they habitually stand in operating.

The Switch-Board, by which the speed of the Motor is controlled, is best placed handy to the foot of the operator, as the Switch is worked by a pedal. By a slight pressure of the foot, two, three, four, or six cells can be brought into service, giving the Motor any desired speed. Full illustrated directions for setting up the Battery and making the fluids supplied with each Battery.

It is our opinion that the dental outfit of the Detroit Motor Company is the best offered to the profession, and we have confidence in its efficiency.

PRICES.

Dental Motor, Battery, Stand, Switch-Board, and four yards of Cable, Hand-piece, Sleeve, and Cable, as per illustration - - - \$89.00

PARTS SEPARATELY.

| | | | | | | | | | | |
|--------------|---|---|---|---|---------|------------|---|---|---|---------|
| Motor | - | - | - | - | \$25.00 | Hand-piece | - | - | - | \$10.00 |
| Motor Stand | - | - | - | - | 15.00 | Cable | - | - | - | 1.50 |
| Battery | - | - | - | - | 25.00 | Sleeve | - | - | - | 2.50 |
| Switch-Board | - | - | - | - | 10.00 | | | | | |

No charge for boxing.

Red Fluid - - per gallon \$0.60 | White Fluid - - per gallon \$0.10
Carboys or Jugs extra.

THE S. S. WHITE DENTAL MANUFACTURING CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

A PRACTICAL TREATISE ON ARTIFICIAL CROWN- AND BRIDGE-WORK.

By **GEORGE EVANS.**

WITH 500 ILLUSTRATIONS.

Octavo. Cloth. 258 pp. Price, \$3.00.

The author is well known as an ingenious expert in the field of which his volume treats, and as might be expected the work is eminently practical. But little space is given to theorizing upon disputed points, the main object of the writer being to tell, in as few words as will make his meaning clear, the best methods of procedure in Crown and Bridge-work. To this end he has enlisted the engraver's art wherever a picture would tell the story graphically. The book is almost profusely illustrated, more than half the figures having been drawn by the author.

Much that is new in practical devices is here presented, together with what has been found valuable in the methods published by others in the dental journals.

To those interested in Crown and Bridge-work (and who among dentists is not?) this volume will be indispensable, as within its covers are to be found plain, practical directions by which, with the exercise of a little ingenuity in adaptation, any suitable case can be treated.

Sent by mail on receipt of the price, or can be ordered through dealers in dental supplies or book-sellers.

THE S. S. WHITE DENTAL MFG. CO.,
Publishers.

Surface Cohesion Forms for Artificial Dentures.

Invention of Dr. Joseph Spyer. Patented January 6, 1885; December 8, 1885.

FIG. 1.

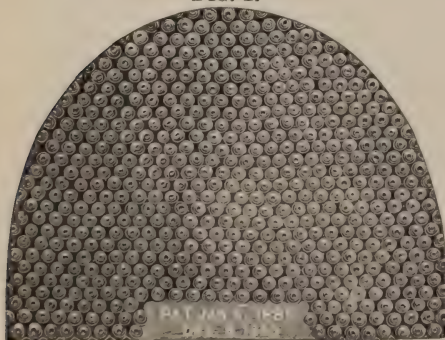
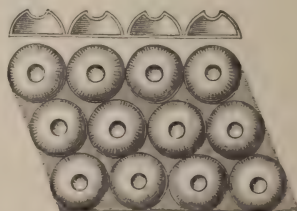


FIG. 2.



A thin metallic Form, the surface of which is covered with minute papilliform prominences—shown in Fig. 2 magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen Forms size of Fig. 1, which can be cut for either upper or lower plates. Full directions accompany each package.

| | | | |
|---------------|---------|------------------------------------|------------------------|
| Price | - - - - | per box containing one dozen Forms | \$1.00 |
| Rubber Cement | - - - - | per dozen | \$4.00; per bottle .35 |

These Forms are also made of Gold with a thin lining of Silver, similar to our Vulcan Gold Lining, and for like use. Thickness of No. 120 Foil.

| | | | |
|-------|---------|------|--------|
| Price | - - - - | each | \$2.50 |
|-------|---------|------|--------|

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia,

New York,

Boston,

Chicago,

Brooklyn

Reduction in Price of Instruments.

Octagon Bronzed Handle Excavators, Burs, and Drills,
formerly \$2.70 per dozen.

REDUCED to \$2.40 PER DOZEN.

Arrington's Amalgam Pluggers and Burnishers.

7-32 in. Octagon Steel Handles, Bronzed.

| | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---------------|
| Nos. 1 to 7 Pluggers | - | - | - | - | - | - | - | - | each 50 cents |
| " 8 to 12 Burnishers | - | - | - | - | - | - | - | - | " 40 " |

1/4 in. File-cut Octagon Steel Handles, Nickel-plated.

| | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---------------|
| Nos. 1 to 7 Pluggers | - | - | - | - | - | - | - | - | each 60 cents |
| " 8 to 12 Burnishers | - | - | - | - | - | - | - | - | " 50 " |

Burnishers.

1/4 in. File-cut Octagon Steel Handles, Nickel-plated, Ball Ends.

| | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---------------|
| Nos. 1 to 31 | - | - | - | - | - | - | - | - | each 50 cents |
| " 32 to 41 | - | - | - | - | - | - | - | - | " 65 " |

Small Pluggers, Set of 72.

| | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|---|-------------------|
| Plain Taper or File-cut Handles | - | - | - | - | - | - | - | - | } per doz. \$4.00 |
| Octagon Handles | - | - | - | - | - | - | - | - | |

REDUCTIONS IN PRICES

OF

NITROUS OXIDE GAS AND CYLINDERS.

From and after August 1, 1888, until further notice, the prices of our Gas Cylinders will be as follows:

| | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|-------------|
| 100 gallon Cylinders | - | - | - | - | - | - | - | each \$6.00 |
| 500 " | - | - | - | - | - | - | - | " 15.00 |

These reductions, with the recent cut in Nitrous Oxide, will make the prices of Cylinders, filled and refilled, as follows:

| | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|--------|
| Cylinder, with 100 gallons of Gas | - | - | - | - | - | - | - | \$8.00 |
| " " 500 " " | - | - | - | - | - | - | - | 25.00 |
| Refilling 100-gallon Cylinder | - | - | - | - | - | - | - | 2.00 |
| " 500 " " | - | - | - | - | - | - | - | 10.00 |

AGATE CEMENT.

REDUCTION IN PRICE.

This Cement does not owe its hardness to alumn or its equivalent in any form, or to any compodent which is liable to be dissolved out in the fluids of the mouth.

EXPERIENCE HAS DEMONSTRATED THAT

The Agate Cement is superior to all others in Strength, Density, Freedom from liability to Flake or Disintegrate in the Mouth, and especially in its Perfect Uniformity.

It possesses also a certain putty-like quality, which renders it easier of manipulation than other Cements.

Put up in boxes containing ounce and half-ounce.

Full directions accompany each package.

| | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|-----------------|
| Reduced Price | - | - | - | - | - | - | - | - | per oz. \$1.00 |
| " " | - | - | - | - | - | - | - | - | per 1/2-oz. .75 |

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

"1000 FINE" GOLD FOIL.



This high standard Gold was introduced many years ago by Messrs. Johnston Bros., and recently revived by us at the solicitation of many practitioners who knew its value. It at once regained its old prominent position, and it has a large sale, being considered by many *the best foil ever made*. As its name implies, all varieties of this Foil, and cylinders and ribbons made from it, will stand the most searching test for purity. The crystallization is so controlled in the process of manufacture as to give the preparations made from it peculiarly fine characteristics. It has a remarkable softness, which enables the operator to pack it like *damp snow*, while by heating all grades of cohesiveness may be obtained without impairing any of its working qualities.

"1000 Fine" *Soft Gold Foil*. Very soft and easily worked, adapting itself readily to the walls of the cavity, yet tough and strong. Can be made cohesive by heating.

Supplied in Nos. 2, 3, 4, 5, 6, 10, 20, 30, 40, 60, and 120.

"1000 Fine" *Cohesive Foil*. For use cohesively only, and will be found to contain that quality sufficiently for most cases as taken from the book; can be made more cohesive by heating.

Supplied in Nos. 2, 3, 4, 5, 6, 10, 20, 30, 40, 60, and 120.

"1000 Fine" *Unannealed Gold Foil*.

THE S. S. WHITE DENTAL MANUFACTURING CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

"1000 Fine" Rolled Gold, Cohesive. For finishing surfaces, contours, etc. prepared entirely by rolling.

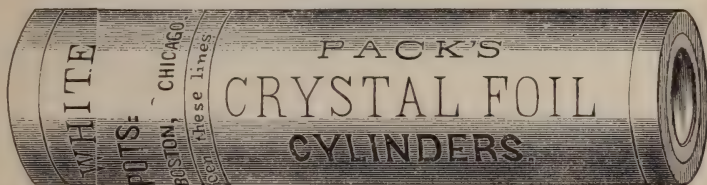
"1000 *Fine*" " *Cohesive Gold Foil.* }

Supplied in Nos. 3, 4, 5, and 6.

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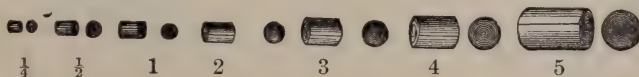
For all numbers except No. 2, which is \$2.00 per ounce extra.

Patented Dec. 17, 1871, and July 4, 1876.

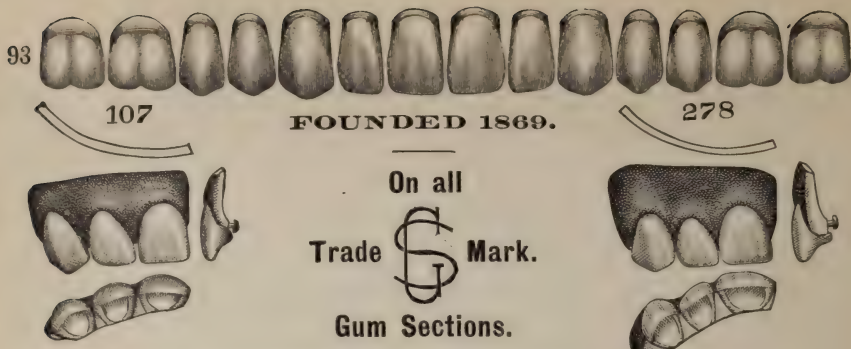


FOUR VARIETIES.

We can also furnish, on order, these Cylinders of plain foil, either Soft or Cohesive.



The S. S. WHITE DENTAL MANUFACTURING CO.
Philadelphia, New York, Boston, Chicago, Brooklyn



GIDEON SIBLEY,

Manufacturer of Artificial Teeth

AND

Manufacturer and Dealer in Dental Supplies.

13TH & FILBERT-STs.,

PHILADELPHIA, PA.

PRACTICAL EXPERIENCE

Will convince sensible Dentists that the teeth that stand the most severe tests in the laboratory, and by actual service in the mouth, are the

Gideon Sibley's Improved Artificial Teeth.

Try them yourself, for sale by all dealers. Sample sets \$1.00 each. Send for sample card and illustrated abridged price list free by mail.

Sample illustrations Gum Sections on the margin.



For Sale by Ransom & Randolph and all first class Dealers.

"*NE PLUS ULTRA.*"

ESTABLISHED 1846.

PURE GOLD FOIL,

SOFT, MEDIUM AND COHESIVE,

in any number desired.

The "Soft" can be made *Cohesive* by re-annealing,

WE GUARANTEE IT

*PURE, UNIFORM, TOUGH,
DUCTILE, MALLEABLE.*

QUOTATIONS.

\$4 per 1-8; \$7.50 1-4; \$15 1-2; \$29 per oz.

If not kept by your dealer, send direct to

J. M. NEY & CO.

Refiners and Assayers,

HARTFORD, CONN.

—FOR SALE BY—

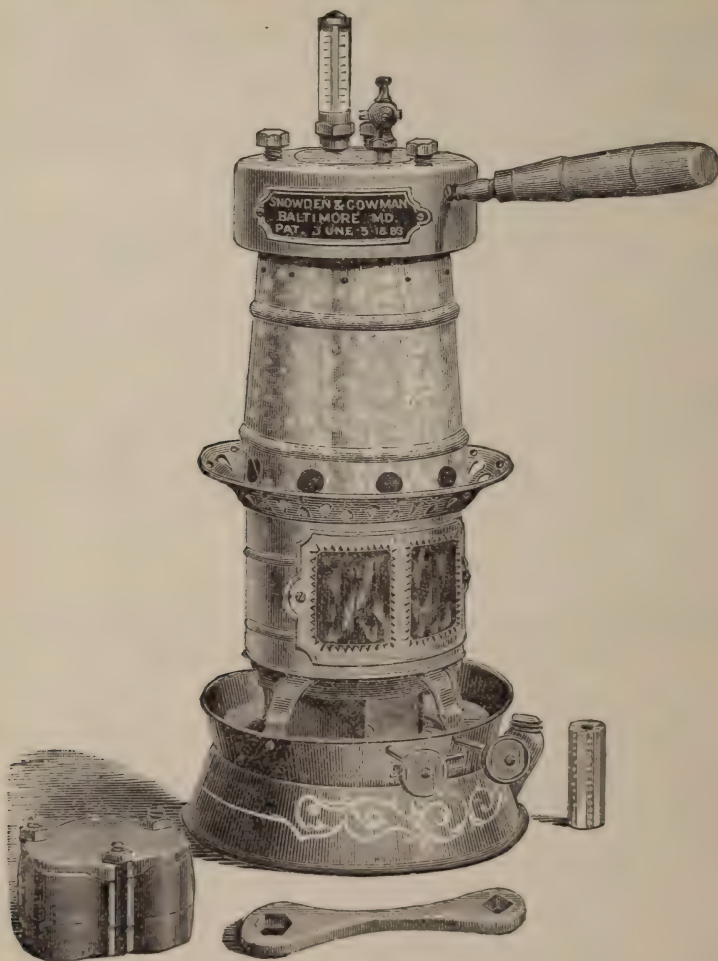
RANSOM & RANDOLPH, Toledo,

And Dental Depots and their Agents.

WE ALSO FURNISH

*Gold, Silver and Aluminum Plate, Tin Foil and Amalgam, and
pay CASH or EXCHANGE for Gold and
Silver Scraps of all kinds.*

SNOWDEN & COWMAN'S New Patent Vulcanizer.



PRICE:

Complete for Kerosene or Gas, with two Large
Malleable Iron Flasks, - - - - - \$18.00

MANUFACTURED AND FOR SALE BY

SNOWDEN & COWMAN,

86 WEST FAYETTE STREET,

BALTIMORE, MD.

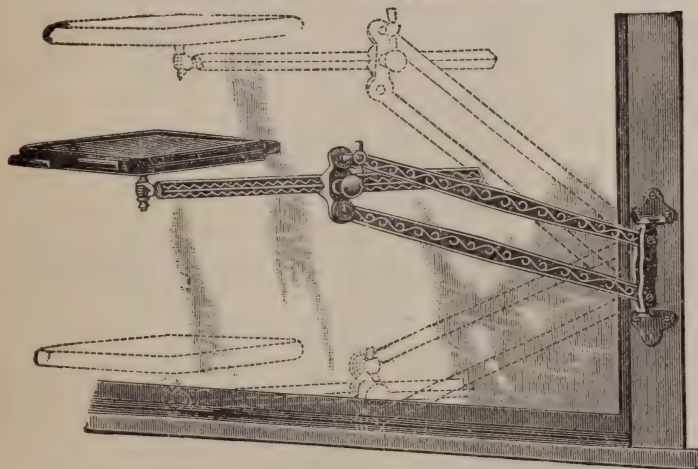
Circulars furnished on application.

ALLAN TABLE.



VENEERED SIDES, - - \$9.00
BEVELED GLASS SIDES, \$12.00
Lamp and Shield, \$0.70

STUDENT BRACKET.



This is the best Bracket in the market for the money. Japanned Arms. Nickel Plated Bar Slides in and out. Black Walnut Table with two drawers.

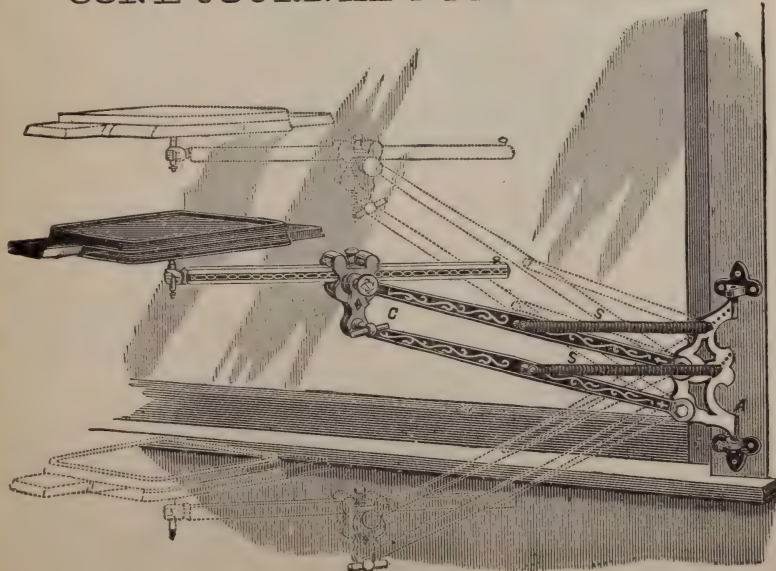
PRICE, - - \$10.

With Allan Table, - \$17. Glass Sides, - \$20.

Trade Supplied, *SAML. A. CROCKER & Co.*

117, 119 & 121 W. 5th St., Cincinnati, O.

CONE JOURNAL BOSS BRACKET.



This is the most convenient Bracket made. All metal parts Nickel Plated. Bar Slides between four rollers. C, the Clamp, can be regulated for any load. The Allan Table works fine on this Bracket.

PRICE WITH SMALL TABLE, - - \$22.50.
" " Veneered Allan Table, - - 29.00.
" " Glass Sides, Allan Table, - - 32.00.

R. S. WILLIAMS,

MANUFACTURER OF

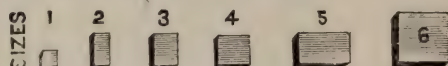
STANDARD COHESIVE GOLD FOIL,
STANDARD MEDIUM GOLD FOIL,
STANDARD SOFT GOLD FOIL,
STANDARD CORRUGATED GOLD FOIL,
STANDARD CRYSTAL SURFACE GOLD (Rolled),
STANDARD UNTRIMMED GOLD FOIL (Cohesive),
STANDARD UNTRIMMED GOLD FOIL (Soft).

STANDARD GOLD CYLINDERS, Styles A, B & C.



NON TIPPING GOLD CYLINDERS (Cohesive),
NON TIPPING GOLD CYLINDERS (Soft),
BURNISH GOLD CYLINDERS (Cohesive),
BURNISH GOLD CYLINDERS (Soft).

RECTANGULAR GOLD PELLETS.



NON TIPPING GOLD BLOCKS,
FOLDED GOLD FOIL,
GOLD AND PLATINA, FOR FILLING (Folds and Rolled).

ELECTRIC GOLD, (Cohesive)—ALWAYS RELIABLE.
CRYSTALLOID GOLD—The Most Practical Plastic Gold, obviates all difficulty in commencing fillings.

STANDARD TIN FOIL AND CYLINDERS,
GOLD LIGATURE WIRE,
AMALGAM ALLOY, No. 1.

GOLD PLATE, SOLDERS, WIRE, ETC. } For Crown
PLATINA PLATE AND WIRE (Hard and Soft,) } and Bridge
Work.

115 WEST 42d STREET,

NEW YORK CITY.

For sale by RANSOM & RANDOLPH,
TOLEDO, O., and INDIANAPOLIS, IND

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF SUPERIOR

ARTIFICIAL TEETH,

MANUFACTURERS OF AND DEALERS IN

DENTAL SUPPLIES,



NOS. 1010 AND 1012 KING STREET,
WILMINGTON, DELAWARE.

We would respectfully call the attention of the Dental profession to our line of DENTAL SPECIALTIES, more particularly our

ARTIFICIAL TEETH.

Their merits universally acknowledged by all who have used them.

We solicit comparison with any in the market.

Ask your dealer for them or send for *samples* and information to

THE WILMINGTON DENTAL MANUFACTURING CO.,

Wilmington, Delaware.

THE VALLEAU MANUFACTURING CO.,

SUCCESSORS TO

WM. VALLEAU, Jr.,

MANUFACTURERS OF

Dental Gold Foils, Amalgams, &c.

DENTAL FILLING, &c.

506 Broome Street, New York City.

Soft and Cohesive Gold Cylinders

IN FOUR SIZES AND FOUR NUMBERS.

The letters denote the size, and the number denotes the number of the foil it is cut from.

No. 1 is cut from 1 sheet of No. 2, rolled.

“ 2 “ “ “ 1 “ “ “ 3, “

“ 3 “ “ “ 1 “ “ “ 4, “

“ 4 “ “ “ 2 sheets “ “ 2, “

Cylinders cut to order from any number foil.

PRICES OF GOLD FOILS:

| | |
|-----------------------------|-------------------------|
| Soft and Cohesive Foil..... | \$30.00 per oz. |
| “ “ “ “ | 15.00 “ $\frac{1}{2}$ “ |
| “ “ “ “ | 7.50 “ $\frac{1}{4}$ “ |
| “ “ “ “ | 4.00 “ $\frac{1}{8}$ “ |

We claim for all our foils that they are made of *absolutely pure* gold, and beaten with the greatest care to produce uniformity and toughness, never losing sight of quality for the sake of cheapness. The best makers have demonstrated that *absolutely pure* gold cannot be made cheap.

All goods can be returned if not as represented.

Sold by RANSOM & RANDOLPH, Toledo, O.

“ J. E. BODINE & CO., Indianapolis, Ind.

COPPER AMALGAM.



To those desiring a Pure Copper Amalgam we can safely recommend this as it has been

WELL TRIED—THOROUGHLY TESTED.

DR. DAWSON, who manufactures this, having made and sold the same to the profession more than seven years ago.

It does not shrink or expand in the least, is antiseptic and gets very hard.

We have made it into the most convenient shape for use, small sticks as shown above.

DIRECTIONS.—Break off a piece the desired quantity, place in an iron spoon and heat until small particles of mercury appear, then crush and grind the mass in a mortar.


PUT UP IN OUNCE AND HALF OUNCE PACKAGES.

Price, per Ounce, \$2.00.

6 Ounces for \$10.00.

3 Ounces for \$5.50.

10 Ounces for \$15.00.

 *For Sale by all the Principal Dealers in Dental Goods.*

AMERICAN DENTAL MANUFACTURING COMPANY,
1298 & 1300 Broadway,
NEW YORK.

AKRON DENTAL RUBBER.

The material of which this Rubber is composed is prepared by new processes, which insure

ABSOLUTE PURITY,

Resulting in a product of wonderful Density, Firmness and Strength. It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work. It is exceedingly tough and light, and takes a beautiful polish. Plates may be made very thin without danger of splitting or crumbling away about the edges. It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses. It has the unqualified approbation and endorsement of the profession everywhere and never fails to give satisfaction. It will cost you nothing to try it. Send for samples and prices.

AKRON RUBBER WORKS,
AKRON, OHIO.

For Sale by all Dental Depots.

A. R. LUKENS.

Established 1866.

J. WHITTINGTON.

LUKENS & WHITTINGTON,

OUR
Instruments

Are Warranted

First Class

All kinds of

Repairing

Carefully
attended to.

SEND for PRICE LIST



DENTAL

Supplies

of All Kinds.

ORDERS

Will Receive

Prompt

Attention.

626 Race Street,

PHILADELPHIA, PA.

"THE OLD RELIABLE."



This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications should be addressed accordingly.

Prices, 1 oz. \$3.00; 2 oz. \$5.50; 4 oz. \$10.00. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D. 476 Columbus Avenue, Boston, Mass.

RANSOM & RANDOLPH'S

Fine Dental Rubber.

This is a dark rubber like whalebone and bow spring, but with less liability to become porous if vulcanized quickly. This rubber is giving good satisfaction.

Price—1 lb., \$2.75 10 lb. lots, \$2.48 per lb.

Manufactured by

RANSOM & RANDOLPH, Toledo, Ohio.

SAMSON RUBBER

STRONGEST AND MOST UNIFORM RUBBER MANUFACTURED.

SAMSON RUBBER.



TRADEMARK,
No. 3788.

Registered
June 20th, 1876.

PRICE LIST OF DENTAL RUBBERS AND CUTTA-PERCHA.

| | | | | | | | | | | | |
|---|---|--------|---|---------|-------------------------|---|--------|---|---|---|--------|
| No. 1 Rubber | - | - | - | Per Lb. | - | - | - | - | - | - | \$2.25 |
| No. 2 Rubber | - | - | - | " | - | - | - | - | - | - | 2.25 |
| Black Rubber | - | - | - | " | - | - | - | - | - | - | 2.25 |
| Gutta-Percha for Base Plate, | - | - | - | " | - | - | - | - | - | - | 2.25 |
| Less than 10 lb., per lb. | - | \$2.25 | | | In 25 lb. lots, per lb. | - | \$1.90 | | | | |
| In 10 lb. lots, | - | 2.00 | | | In 50 lb. lots, | - | 1.75 | | | | |
| Samson Rubber | - | - | - | Per Lb. | - | - | - | - | - | - | 2.75 |
| Maroon Rubber | - | - | - | " | - | - | - | - | - | - | 2.75 |
| Flexible or Palate Rubber | - | - | - | " | - | - | - | - | - | - | 2.75 |
| Vulcanite Gutta-Percha | - | - | - | " | - | - | - | - | - | - | 2.75 |
| Less than 10 lb., per lb. | - | \$2.75 | | | In 25 lb. lots, per lb. | - | \$2.00 | | | | |
| In 10 lb. lots | - | 2.25 | | | In 50 lb. lots, | - | 1.80 | | | | |
| No. 1 Weighted Rubber, mixed with Pure Metal, | - | - | - | Per Lb. | - | - | - | - | - | - | 4.00 |
| No. 2 " " " " " " | - | - | - | " | - | - | - | - | - | - | 4.00 |
| Black " " " " " " | - | - | - | " | - | - | - | - | - | - | 4.00 |
| Weighted Gutta-Percha | - | - | - | Per Lb. | - | - | - | - | - | - | 4.00 |

Adamantine Filling or Stopping.

These Rubbers being made from carefully selected Para Gum, and Manufactured by Improved Processes, I can guarantee them to give entire satisfaction to the user and retain a high polish.

For any Further Information, Address,

EUGENE DOHERTY,

110 and 112 Kent Ave., Cor. North Eighth St.,
BROOKLYN, E. D., N. Y.

CAULK'S FILLING MATERIALS.

ESTABLISHED 1877.

ESTABLISHED 1877. TRADE MARK. DIAMOND

CAULK'S DIAMOND CEMENT
AND OTHER DENTAL PURPOSES.

CAULK'S DIAMOND CEMENT
EXCELLENT FOR LINING CAVITIES.

CAULK'S FILLING MATERIALS
MOUNTING ARTIFICIAL CROWNS.

CAULK'S DIAMOND CEMENT
FOR FILLING TEETH.

CAULK'S DIAMOND CEMENT

GRAY YELLOW. LIQUID. MEDIUM. LIGHT.

FOUR COLORS and LIQUID.—Gray, Yellow, Medium and Light, \$2.00 per Pkg.
TWO COLORS and LIQUID.—Gray and Yellow, 1.50 " "
ONE COLOR and LIQUID.—Gray, Yellow, Medium, Light or Cum, 1.00 " "

THIS COMPOUND STANDS WITHOUT A RIVAL.

Used since 1877 by Leading Dentists Throughout the World.

DIAMOND CEMENT

It Hardens in Water or Saliva.

Should not be classed with the so-called oxy-phosphates, as is often the case—the materials of which it is composed and its process of manufacture being entirely different—hence its SUPERIORITY.

Two or more colors blended together (in mixing) will produce any shade desired.

CAULK'S PAR-EXCELLENCE ALLOY.

This GOLD AND PLATINA ALLOY is manufactured on a new principle, has won its way into popular favor, and now ranks among the best. By our new method of manufacture, there is no GUESS-WORK, the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price, \$3.00 per Ounce. 2 Ounces, \$5.00. 5 Ounces, \$11.00.

CAULK'S WHITE ALLOY

Has been greatly improved, costing more to produce it.

This ALLOY contains NO Zinc or Cadmium; is of a peculiar grayish-white color, has good edge-strength, and will stand mastication anywhere in the mouth.

Price, \$4.00 per Ounce. 2 Ounces, \$7.00. 5 Ounces, \$15.00.

Caulk's Diamond Point Stopping and Gutta-Percha Points for Filling Roots.

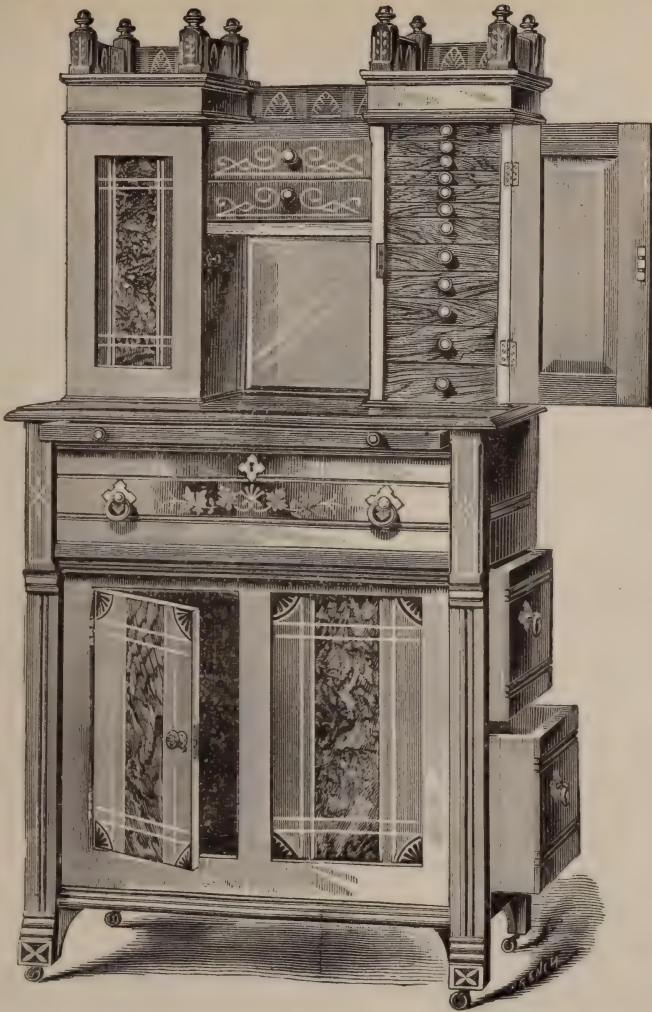
Price, in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$ and 1 ounce packages, per ounce, (reduced to) \$2.00.

All of Caulk's Filling Materials are sold by Troy Weight, and sent by mail.

Over 15,000 Dentists are using these Materials throughout the world. What better evidence do you wish of their Superiority and Excellence?

L. D. CAULK, Manufacturer, Camden, Delaware.

Improved Cabinet Case No. 10.



This Cabinet Case is made of black walnut, hard oil finish. The panels are French veneer, and the mountings are all nickel plated. The total height is 5 feet 2 inches; width 31 inches; depth 20 inches. The upper portion has 12 drawers, $7\frac{1}{2} \times 7\frac{1}{2}$; 6 of these are $\frac{1}{2}$ inch deep; 4, $1\frac{3}{4}$ inches deep; 2, $2\frac{1}{2}$ inches deep. A door closes over all these drawers. On the opposite side is space same size, with adjustable shelves for medicines. Connecting the two parts above are 2 drawers, $10\frac{3}{4} \times 12\frac{1}{2}$, by 3 inches deep. Below these drawers is a beveled plate mirror, 10×10 . The lower portion contains one drawer in front, 25×16 , 5 inches deep, with slide drawer over it $25 \times 16\frac{1}{2}$ by $\frac{1}{2}$ inches deep, lined with felt cloth. At one end, 2 drawers, $14\frac{1}{2} \times 13\frac{1}{2}$, 9 inches deep. In front is a closet, 20×16 , 12 inches deep, with shelf.

| | | | |
|-------------------------------------|---|---|----------|
| PRICE, with Wood Top (Boxing Free) | - | - | \$45.00. |
| " With Italian Marble Slab, (white) | - | - | 50.00. |
| " " Knoxville Marble, (pink) | - | - | 50.00. |

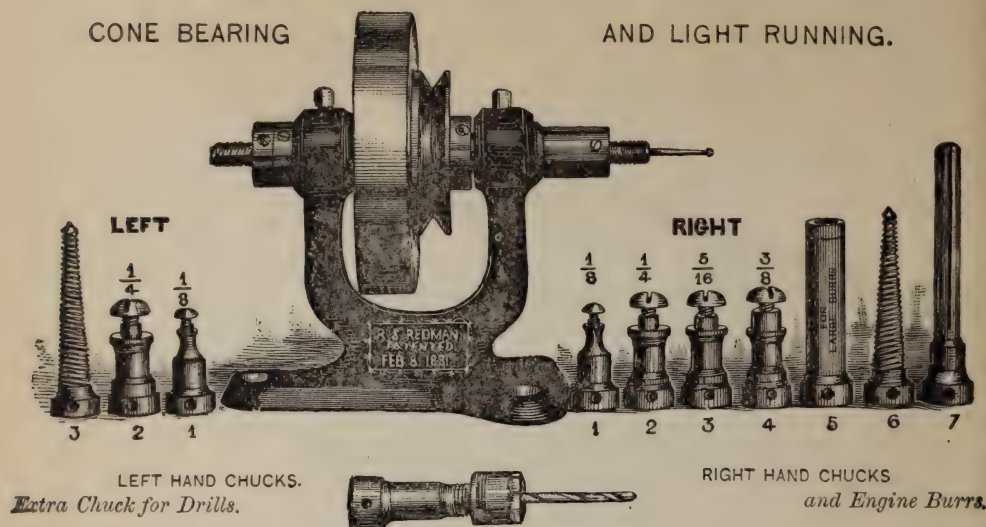
Manufactured by RANSOM & RANDOLPH, TOLEDO, OHIO.

BRANCH: 29 Circle Street, INDIANAPOLIS, IND.

THE REDMAN PATENT LATHE HEAD.

CONE BEARING

AND LIGHT RUNNING.



LEFT HAND CHUCKS.

Extra Chuck for Drills.

RIGHT HAND CHUCKS

and Engine Burrs.

PRICES.

| | | |
|---|---------|--------|
| The Redman Lathe-Head, complete with 10 Chucks, | - - - - | \$8.50 |
| Chuck for Drills and Engine-Burs, extra, | - - - - | 2.00 |
| Extra Brass Chucks, | - - - - | .25 |
| Hand Rest for Turning, | - - - - | .50 |
| For Office Use, with the whole head polished, nickel-plated and ornamented, | - - - - | 10.00 |

For Sale by Ransom & Randolph, Toledo, O.



Office Preparation BOTTLE.

Suggested by Dr. L. C. Ingersoll, Keokuk, Iowa.

This bottle is especially adapted for Varnish, Liquid Silex, Collodion, or any preparation in which a brush is used. There is a ground glass joint of top to bottle, so there is no loss by evaporation. Cut exact size of Bottle.

Price, 25 cents each. \$2.50 per dozen.
Large, 6 oz. 35c. " 4.00 "

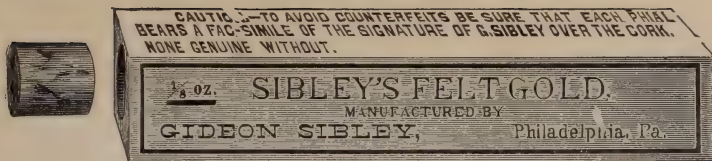
MANUFACTURED BY

RANSOM & RANDOLPH,

TOLEDO, OHIO.

J. E. Bodine & Co.,

INDIANAPOLIS, IND.



GOLD FILLING MADE EASY BY USING SIBLEY'S FELT GOLD.

After a long series of experiments, I am now able to offer to the profession an entirely new form of Gold for Filling Teeth, which enables the operator to work more rapidly, with greater ease, and produce better results than with any other form of Gold.

The Gold is prepared in strips of convenient thickness that may be cut with sharp scissors or a knife into pellets of any desired size. In color it

Resembles Frosted Gold.

Is absolutely pure, thoroughly cohesive and homogeneous and readily spreads; conforming to the walls of the cavity,

Making a Perfectly Tight Filling.

Unless the Gold is exposed to moisture annealing is unnecessary.

Full directions for use accompany each package.

That the profession may have an opportunity to test this Gold, without buying the usual minimum package, for a short time I will put up packages containing 1-40th of an ounce; price, \$1.00.

PRICES OF GOLD AS FOLLOWS.

$\frac{1}{8}$ ounce, **\$4.50.** $\frac{1}{2}$ ounce, **\$17.50.** 1 ounce, **\$34.00.**

CAUTION.—See that a fac-simile of my signature is over the cork of each phial; none genuine without.

CASH MUST ACCOMPANY ALL ORDERS FOR GOLD.

NEEDLE FOIL CARRIER.

(Patent applied for.)

The cut in the margin represents the full size of this useful instrument.

It consists of a fine needle point, controlled by a spring with sufficient tension to hold it extended while picking up the Gold and carrying it to the Cavity, by pressure the Gold is then forced into position when the spring allows the needle to recede and free itself leaving the Gold in place. This Carrier was especially designed for Sibley's Felt Gold, but will be found to surpass anything heretofore used for this purpose with any form of Gold. Price, \$3.

GIDEON SIBLEY,

13th and Filbert Streets,

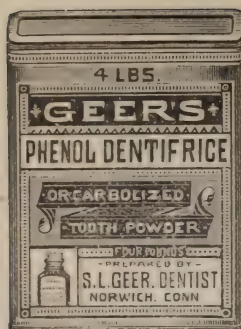
PHILADELPHIA, PA.

Sold by RANSOM & RANDOLPH, Toledo, Ohio.

" J. E. BODINE & CO., Indianapolis, Ind.

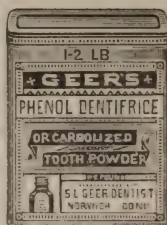
(PATENT APPLIED FOR.)





GEER'S

PHENOL
DENTIFRICE.



CARBOLIZED TOOTH POWDER.

This preparation is of inestimable value in *preserving* and *beautifying* the Teeth, *strengthening* the Gums and giving pleasant fragrance to the Breath. It prevents and arrests decay, polishes and preserves the enamel to which it imparts a pearl-like whiteness. Its unprecedented success for ten years shows the universal favor in which it is held, while the fact of its being compounded of the choicest materials, selected with extreme care, constitutes it the purest and safest tooth powder now in use. Put up in

4, 1, $\frac{1}{2}$ and $\frac{1}{4}$ lb. Cans.
Trial Package, $\frac{1}{8}$ lb., postpaid
for 15 cents.

\$1 $\frac{1}{2}$ lb.
10 lbs., 90 cents $\frac{1}{2}$ lb.
20 " 80 " " "

Sold by RANSOM & RANDOLPH,

Wholesale and Retail,
Toledo, Ohio, and Indianapolis, Ind.

J. E. BODINE & CO.

SUCCESSORS TO

Ransom, Randolph & Co.,

Dental Depot,

29 CIRCLE STREET,

INDIANAPOLIS, - INDIANA.

New York College of Dentistry

245 EAST 23d STREET,

NEW YORK.

OFFICE OF THE DEAN.

22 West 40th Street.

For the Annual Announcement and Catalogue,
or other information, address, (as above),

FRANK ABBOTT, M. D.,

Dean.

UNIVERSITY OF PENNSYLVANIA. DENTAL DEPARTMENT.

This department will open the first Monday in September.

The *Regular* or *Winter* session will begin the first Monday in October. The Commencement will take place May 1, 1889.

QUALIFICATIONS FOR GRADUATION.—The Candidate must be 21 years of age. Two full courses of lectures at the *Regular* or *Winter Session* will be required. Students who have attended one full term in another dental school, recognized by the faculty, will be admitted to the graduating class upon presentation of the required certificate.

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INDIANAPOLIS.

1888-89.

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The Forty-Third Annual Winter Session begins Tuesday, October 2, 1888,
and closes March 1, 1889.

The Annual Spring Session begins about April 1, 1889, and continues
eight weeks.

The requirements for admission and graduation are those adopted by the
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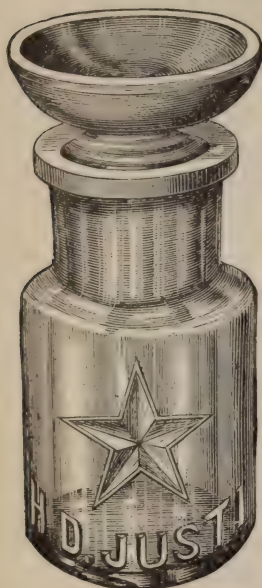
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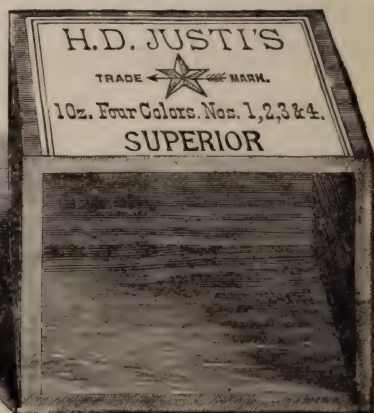
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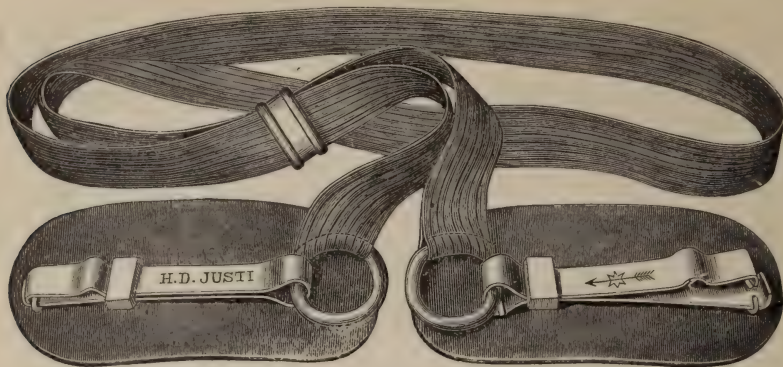
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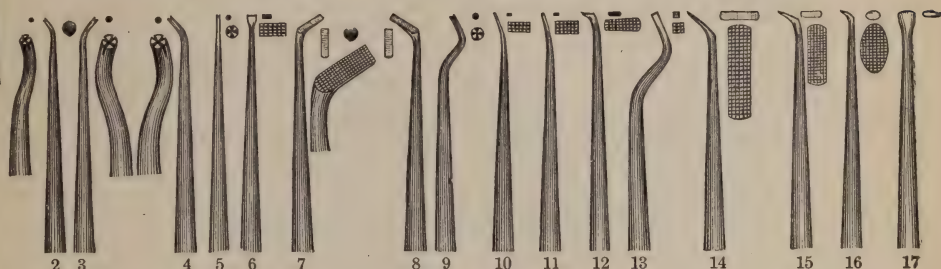
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VOL. IX.

FEBRUARY, 1889.

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XENIA, OHIO.
L. P. BETHEL, D. D. S.,
TOLEDO, OHIO.

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CONTENTS.

| | | |
|--|--|------|
| Prof. Geo. W. Keely, D.D.S..... | <i>Frontispiece.</i> | |
| | | PAGE |
| CONTRIBUTIONS— | | |
| Prof. Geo. W. Keely, D.D.S..... | <i>By Geo. Watt, M.D., D.D.S.</i> | 57 |
| What Will '89 Bring Us?..... | <i>By W. H. Whitslar, D.D.S., M.D.</i> | 60 |
| Combination of Plaster-of-Paris and Modelling Compound for Taking Impressions..... | <i>By Levitt E. Custer, D.D.S.</i> | 62 |
| Medical Education for Dentists..... | <i>By C. M. Wright, D.D.S., M.D.</i> | 63 |
| Sensitive Dentine..... | <i>By Dr. T. B. Jarard.</i> | 73 |
| Joint Meeting of the American and Southern Dental Associations— Reported by "Mrs. M. W. J." | | 76 |
| COMPILATIONS— | | |
| Some Affections of the Gums, <i>By Frank Lankester, L.R.C.P., M.R.C.S., L.D.S.</i> | | 84 |
| EDITOR'S SPECIALS— | | |
| Climbing and Digging..... | | 88 |
| Crime and Punishment..... | | 91 |
| Dunn's Medicinal Syringe..... | | 91 |
| WHAT WE SEE AND HEAR..... | <i>Edited by L. P. Bethel, D.D.S.</i> | 92 |
| SOCIETIES— | | |
| Meetings..... | | 99 |
| BOOKS AND PAMPHLETS— | | |
| Therapeutics: Its Principles and Practice..... | | 100 |
| Diseases of the Heart and Lungs..... | | 101 |
| Disinfection and Disinfectants..... | | 102 |
| Manifold Knowledge..... | | 102 |
| OUR AFTERMATH— | | |
| The Power of Song—Medicine and Money—A Good Doctor—To Avoid Infection—That Nine Thousand..... | | 104 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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CONTENTS.

| CONTRIBUTIONS— | PAGE |
|--|------|
| The Careful Finishing of Amalgam Fillings, <i>By Dr. Geo. F. Cheney, D.D.S.</i> | 105 |
| Adapting Artificial Dentures..... <i>By C. C. E.</i> | 107 |
| Amalgam..... <i>By George H. Wilson, D.D.S.</i> | 108 |
| Practical Hints..... <i>By Dr. H. F. Barnes.</i> | 112 |
| Retrospective..... <i>By Dr. J. W. White.</i> | 114 |
| Eye Strain..... <i>By J. R. Briggs, M.D.</i> | 118 |
| Proceedings of Chicago Dental Society— Reported by "Mrs. M. W. J." | 121 |
| —Gum-Colored Porcelain Fillings..... <i>By Dr. A. H. Thompson.</i> | 121 |
| —A Study of the Effects of Cocaine upon Man and Some of the Lower Animals..... <i>By Dr. Chas. P. Prunyn.</i> | 122 |
| —Sensitiveness of Dentine and its Control..... <i>By Dr. T. E. Weeks.</i> | 124 |
| —Antiseptics..... <i>By Dr. G. V. Black.</i> | 126 |
| COMPILATIONS— | |
| Some Affections of the Gums, <i>By Frank Lankester, L.R.C.P., M.R.C.S., L.D.S.</i> | 129 |
| WHAT WE SEE AND HEAR..... <i>Edited by L. P. Bethel, D.D.S.</i> | 132 |
| OBITUARY—Dr. P. J. Kinnaman—Dr. Flavius Searle..... | 144 |
| —Dr. E. H. Lewis—Death of the Wife of a Prominent Dentist..... | 145 |
| SOCIETIES— | |
| Meetings..... | 145 |
| Vermont State Dental Society..... | 146 |
| Mississippi Valley Dental Society..... | 147 |
| Southern Illinois Dental Society..... | 147 |
| St. Louis Dental Society..... | 148 |
| BOOKS AND PAMPHLETS— | |
| Hamilton's Medical Jurisprudence..... | 148 |
| Excessive Venery..... | 149 |
| The Story of Louisiana..... | 149 |
| Manifold Cyclopedia..... | 149 |
| Wilmington, Delaware..... | 150 |
| Literary Items..... | 150 |
| Better than Ever..... | 150 |
| OUR AFTERMATH— | |
| Christian Science Undergoing a Test..... | 151 |
| The Secret of Easy Labor—Practitioner's Course—Death from Chloroform..... | 152 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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CONTENTS.

PAGE

CONTRIBUTIONS—

| | | |
|---|-------------------------------|-----|
| Neurectomy of the Inferior Branch of the Fifth Nerve, | By J. H. Glass, M.D. | 153 |
| President's Address..... | By H. L. Moore, D.D.S. | 155 |
| Association..... | By C. R. Butler, M.D., D.D.S. | 157 |
| Calcific Inflammation..... | By J. G. Templeton, D.D.S. | 159 |
| The Nervous Patient..... | By J. R. Callahan, D.D.S. | 162 |
| Mistakes..... | By Wm. N. Morrison, D.D.S. | 165 |
| Dental Therapeutics—Retrospective and Prospective, | By W. T. Jackman, D.D.S. | 167 |
| Proceedings of Chicago Dental Society— | Reported by "Mrs. M. W. J." | 170 |
| —Study of Prehistoric Remains..... | By Dr. J. J. R. Patrick. | 170 |
| —Caries and Necrosis in their Relation to Practical Dentistry, | By Dr. J. H. Martindale. | 170 |
| —The Development of the Teeth, the Formation of Dentine, and its Appearance in Health and Decay ... | By Dr. R. R. Andrews. | 172 |
| —Artistic Methods in Prosthetic Dentistry. | By Dr. L. W. Comstock. | 174 |
| —Obtunding Sensitive Dentine and Controlling Peridental Inflammation by Electrolysis..... | By Dr. McGraw. | 174 |

CORRESPONDENCE—

| | | |
|---|----------------------|-----|
| Combination of Continuous Gum and Rubber. | By Dr. W. H. Miller. | 175 |
|---|----------------------|-----|

COMPILATIONS—

| | | |
|------------------------------|--|-----|
| Some Affections of the Gums, | By Frank Lankester, L.R.C.P., M.R.C.S., L.D.S. | 177 |
|------------------------------|--|-----|

EDITOR'S SPECIALS—

| | |
|-------------------------|-----|
| Definite Thought..... | 179 |
| District Societies..... | 183 |

| | | |
|---------------------------|--------------------------------|-----|
| WHAT WE SEE AND HEAR..... | Edited by L. P. Bethel, D.D.S. | 183 |
|---------------------------|--------------------------------|-----|

SOCIETIES—

| | |
|--|-----|
| Meetings..... | 192 |
| Northern Ohio Dental Association..... | 193 |
| Nebraska State Dental Society..... | 193 |
| Ohio College of Dental Surgery..... | 194 |
| Indiana Dental College..... | 195 |
| Postponement..... | 195 |
| Mississippi Valley Association of Dental Surgeons..... | 195 |
| The Mad River Valley Dental Society..... | 195 |
| Born..... | 196 |
| The Dental Protective Association..... | 196 |

BOOKS AND PAMPHLETS—

| | |
|---|-----|
| Operative Dentistry..... | 196 |
| Brown's Medical Diagnosis..... | 197 |
| Diseases of the Heart..... | 198 |
| Alden's Manifold Cyclopedic..... | 198 |
| Contributions to the History of Development of the Teeth..... | 198 |
| Etiology of Constitutional Irregularities of the Teeth..... | 199 |
| Transactions of the American Dental Association..... | 199 |

OUR AFTERMATH—

| | |
|---|-----|
| Chicago Still Ahead—The Mississippi Valley Meeting..... | 200 |
|---|-----|

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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GEORGE WATT, M. D., D. D. S.,
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CONTENTS.

| CONTRIBUTIONS— | PAGE |
|--|------|
| Practical Application of Bridge-Work, Illustrated, <i>By Everett M. Cook, D.D.S.</i> | 201 |
| Lack of Thoroughness in Dental Operations, Illustrated, <i>By L. P. Bethel, D.D.S.</i> | 211 |
| The Robinson Method of Filling Teeth with Gold, <i>By Dr. A. Robinson.</i> | 213 |
| Copper Amalgam, Illustrated. <i>By Levitt E. Custer, B.S., D.D.S.</i> | 215 |
| The International Tooth Crown Company <i>versus</i> The Dentists of the United States. | 224 |
| CORRESPONDENCE— | |
| Continuous Gum and Rubber Combinations. <i>By Dr. L. P. Haskell.</i> | 227 |
| EDITOR'S SPECIALS— | |
| Partial Set of False Teeth Swallowed, and Becoming Impacted are Removed by the Operation of Esophagotomy. | 229 |
| Heat as a Disinfectant. | 231 |
| Seventh District Dental Society. | 234 |
| Another. | 235 |
| WHAT WE SEE AND HEAR. <i>Edited by L. P. Bethel, D.D.S.</i> | 235 |
| BOOKS AND PAMPHLETS— | |
| The Principles and Practice of Dentistry. | 248 |
| Dental Science. | 249 |
| A Handbook of Therapeutics. | 249 |
| Favorite Prescriptions of Distinguished Practitioners with Notes on Treatment. | 250 |
| The International Medical Annual and Practitioners' Index. | 250 |
| Indigestion, Bilioussness and Gout in its Protean Aspects. | 250 |
| Alden's Manifold Cyclopedia. | 251 |
| SOCIETIES— | |
| Meetings. | 252 |
| Illinois State Dental Society. | 252 |
| Northern Ohio Dental Association. | 253 |
| Central Tennessee College. | 253 |
| Missouri Dental College. | 254 |
| American College of Dental Surgery. | 254 |
| Chicago College of Dental Surgery. | 255 |
| University of Maryland. | 256 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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GEORGE WATT, M. D., D. D. S.,
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CONTENTS.

| | PAGE |
|---|---|
| CONTRIBUTIONS— | |
| An Improved Appliance in the Physiological Treatment of Cleft Palate, Illustrated..... | By <i>Henry A. Baker, D.D.S.</i> 258 |
| Some Results from the Use of Iodoform.... | By <i>E. B. Davis, D.D.S.</i> 266 |
| President's Address..... | By <i>Dr. R. W. Warner.</i> 271 |
| Obturators..... | By <i>James Lewis, D.D.S.</i> 272 |
| Tin and Gold as a Combination Filling.... | By <i>G. H. Wells, D.D.S.</i> 274 |
| A Case in Practice.... | By <i>R. M. Chase, D.D.S.</i> 280 |
| Extraction of Deciduous Teeth..... | Read by <i>G. H. Swift, D.D.S.</i> 282 |
| Success..... | By <i>Allison J. Parker, D.D.S.</i> 286 |
| Vermont State Dental Society..... | By <i>G. F. C.</i> 286 |
| CORRESPONDENCE— | |
| Alumni Reunion of the University of Michigan—Dental Depart- ment..... | 291 |
| Queries..... | By <i>Dr. L. P. Haskell.</i> 292 |
| EDITOR'S SPECIALS— | |
| The Health of Dentists..... | 292 |
| Let us be Accurate..... | 294 |
| Post Graduate School..... | 294 |
| WHAT WE SEE AND HEAR..... | Edited by <i>L. P. Bethel, D.D.S.</i> 295 |
| BOOKS AND PAMPHLETS— | |
| Insomnia and Other Disorders of Sleep..... | 301 |
| Alden's Manifold Cyclopedia..... | 301 |
| SOCIETIES— | |
| Meetings..... | 302 |
| Indiana State Dental Association..... | 302 |
| Meeting of the Michigan State Board of Examiners in Dentistry... | 302 |
| Chicago Dental Society..... | 303 |
| New Dental Law..... | 303 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
 DR. GEO. WATT, Xenia, O., or DR. L. P. BETHEL, 513 Jefferson St., Toledo, O.
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CONTENTS.

| CONTRIBUTIONS— | PAGE |
|--|---|
| Dental Electricity | <i>By Dr. F. S. Whitslar.</i> 305 |
| Pyorrhœa Alveolaris | <i>By J. R. Bell, D.D.S.</i> 310 |
| The Use and Abuse of Amalgam..... | <i>By J. R. Owens, D.D.S.</i> 312 |
| The Best Method of Obtaining a Correct Impression for a Set of Artificial Dentures..... | <i>By Jesse Megee, D.D.S.</i> 317 |
| Judgment as an Element in Dental Practice, | <i>By E. C. Chandler, D.D.S.</i> 318 |
| The "Royal Suc'." | <i>By Dr. J. F. Siddall.</i> 324 |
| Don't..... | <i>By James P. Thompson, M.D.</i> 327 |
| CORRESPONDENCE— | |
| Queries—Answered | <i>By Everett M. Cook.</i> 330 |
| Continuous-Gum and Rubber Combination..... | <i>By W. H. Miller.</i> 332 |
| Implantation Data Desired..... | 334 |
| EDITOR'S SPECIALS— | |
| Give Well Defined Thoughts..... | 335 |
| WHAT WE SEE AND HEAR..... | <i>Edited by L. P. Bethel, D.D.S.</i> 337 |
| A Bill for an Act to Regulate the Practice of Dentistry in the State of Minnesota..... | 344 |
| BOOKS AND PAMPHLETS— | |
| Nervous Exhaustion..... | 349 |
| A Practical Treatise on Headache, Neuralgia, Sleep and its Derangements, and Spinal Irritation | 350 |
| Knowledge and Language..... | 351 |
| SOCIETIES— | |
| Meetings..... | 351 |
| Minnesota State Dental Association..... | 351 |
| The Minnesota State Board of Dental Examiners..... | 352 |
| New Jersey State Dental Society..... | 352 |
| Northern Ohio State Dental Society..... | 352 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
 DR. GEO. WATT, Xenia, O., or DR. L. P. BETHEL, 513 Jefferson St., Toledo, O.
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CONTENTS.

| CONTRIBUTIONS— | PAGE |
|--|---|
| Restoring Articulation of Tipping Molars with Gold, <i>By Dr. J. C. Walton.</i> | 353 |
| Cocaine Anæsthesia—with a Report of over Fifty Cases, <i>By John L. Gish, M.D., D.D.S.</i> | 355 |
| Filling Root Canals of Human Teeth | <i>By Isaac Douglas.</i> 364 |
| Dissemination of the Knowledge of Dental Hygiene Among the Masses..... | <i>By L. P. Bethel, D.D.S.</i> 370 |
| Is it our Duty to give Advice to Mothers during Gestation ? <i>By J. R. Bell, D.D.S.</i> | 376 |
| Early Anæsthesia by Sulphuric Ether..... | <i>By A. Berry, D.D.S.</i> 378 |
| CORRESPONDENCE— | |
| Johnstown and her Dentists | <i>By S. C. Poland, D.D.S.</i> 379 |
| EDITOR'S SPECIALS— | |
| Death's Doings—Dr. Frederick H. Rehwinkel..... | 381 |
| —Mrs. Robert Van Valzah..... | 382 |
| —Dr. Calvin R. Taft..... | 383 |
| —Philip H. Welch..... | 384 |
| WHAT WE SEE AND HEAR..... | <i>Edited by L. P. Bethel, D.D.S.</i> 385 |
| An Explanation..... | 393 |
| Important Dispatch from Dr. Crouse..... | 399 |
| SOCIETIES— | |
| Meetings..... | 399 |
| American Dental Association..... | 400 |
| The National Association of Dental Faculties | 400 |
| The National Association of Dental Examiners..... | 400 |
| Indiana State Dental Association... .. | 401 |
| Dental Trade Association..... | 401 |
| Michigan State Dental Association..... | 401 |
| College of Dental Surgery—Michigan University..... | 402 |
| The International Dental Congress..... | 402 |
| BOOKS AND PAMPHLETS— | |
| Dental Medicine..... | 405 |
| Bright's Disease..... | 405 |
| Our Teeth..... | 406 |
| The Story of Vermont..... | 406 |
| OUR AFTERMATH— | 408 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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CONTENTS.

| | PAGE |
|---|---|
| CONTRIBUTIONS— | |
| Why do Fillings Fail?..... | <i>By Dr. H. H. Harrison.</i> 409 |
| President's Address..... | <i>By C. S. Case, D.D.S., M.D.</i> 413 |
| What Shall we do in the Case?.. | <i>By Gilbert E. Corbin, M.D., D.D.S.</i> 418 |
| The Survival of the Unfit in Human Dentition. | <i>By Dr. J. C. Parker.</i> 422 |
| On Some Relations of the Fifth Cranial Nerve, | <i>By David Ferrier, M.D., F.R.S.</i> 425 |
| American Dental Association—Special Report | 435 |
| COMPILATIONS— | |
| Removable Bridge-Work..... | <i>By E. A. Councell, L.D.S.</i> 441 |
| EDITOR'S SPECIALS — | |
| The Dental Periosteum..... | 442 |
| Anything New Under the Sun?..... | 444 |
| A Surprise..... | 445 |
| Unripe..... | 446 |
| WHAT WE SEE AND HEAR..... | <i>Edited by L. P. Bethel, D.D.S.</i> 447 |
| SOCIETIES— | |
| Meetings..... | 452 |
| Central Illinois Dental Society..... | 452 |
| Hayden Dental Society of Chicago..... | 452 |
| North Carolina State Dental Association..... | 453 |
| Missouri State Dental Association | 453 |
| BOOKS AND PAMPHLETS— | |
| Physicians Leisure Library..... | 454 |
| Alden's Manifold Cyclopeda..... | 455 |
| OUR AFTERMATH— | |
| Three Years' Time Required—No License Required—Lead Poison- | |
| ing—The Human Heart—Encouraging Science..... | 456 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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CONTENTS.

CONTRIBUTIONS—

PAGE

| | | |
|--|-----------------------------------|-----|
| The Combination of Metals for Filling Teeth, | <i>By W. N. Wilson, D.D.S.</i> | 457 |
| Answers to Queries..... | <i>By Dr. L. P. Haskell.</i> | 460 |
| Common Sense Dentistry..... | <i>By M. H. Chappell, D.D.S.</i> | 461 |
| Why I Failed..... | <i>By A. M. Markle, D.D.S.</i> | 467 |
| To the Dentists of Western Indiana..... | <i>By E. A. Gillette, D.D.S.</i> | 468 |
| The Application of the Arts and Sciences to the Practice of Dentistry..... | <i>By Dr. Lyndon W. Comstock.</i> | 471 |
| American Dental Association—Special Report..... | | 481 |
| National Association of Dental Examiners..... | | 494 |
| National Association of Dental Faculties..... | | 497 |

CORRESPONDENCE—

| | | |
|------------------------------------|---------------------------|-----|
| International Dental Congress..... | <i>By N. W. Williams.</i> | 500 |
| Dr. R. L. Evans..... | | 502 |

SOCIETIES—

| | | |
|--|--|-----|
| Ohio State Dental Society..... | | 503 |
| Southern Minnesota Dental Society..... | | 503 |

BOOKS AND PAMPHLETS—

| | | |
|---------------------------------|--|-----|
| A Treatise on Surgery..... | | 503 |
| Physicians Leisure Library..... | | 504 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
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CONTENTS.

| | PAGE |
|---|---|
| CONTRIBUTIONS— | |
| The Dewey Crown, Illustrated..... | <i>By Dr. S. B. Dewey.</i> 505 |
| Treatment of Pyorrhœa Alveolaris and Similar Tissue Alteration, | <i>By Chas. B. Atkinson, D.D.S.</i> 509 |
| Some Hints on Filling an Artificial Tooth..... | <i>By C. C. Everts M.D.</i> 511 |
| Caution..... | <i>By E. H. Raffensperger, D.D.S.</i> 512 |
| Fixation of the Jaw—Case of Old Standing Cured by Operation, | <i>By Dr. S. C. Campbell.</i> 514 |
| The Pathology of Actino-Mycosis..... | <i>By Joseph Abbott, L.D.S.</i> 517 |
| The Electric Light as a Means of Diagnosis in Empyema of the | |
| Antrum..... | <i>By Theodore Heryug.</i> 521 |
| CORRESPONDENCE— | |
| American Dental Society of Europe..... | <i>By N. W. Williams.</i> 530 |
| Letter from England..... | <i>By W. Mitchell.</i> 534 |
| Boston Dental College..... | 534 |
| EDITOR'S SPECIALS— | |
| Read this Carefully..... | 534 |
| Important..... | 535 |
| Professional Sacrifices of Early Days..... | 536 |
| The Etiology of Caries—More About it..... | 539 |
| Death's Doings..... | 543 |
| WHAT WE SEE AND HEAR..... | <i>Edited by L. P. Bethel, D.D.S.</i> 544 |
| BOOKS AND PAMPHLETS— | |
| Orthodontia, or Malposition of the Human Teeth..... | 551 |
| Diseases of the Nervous System..... | 551 |
| A Treatise on Hysteria and Epilepsy..... | 551 |
| Pulmonary Tuberculosis..... | 551 |
| Bright's Disease of the Kidneys..... | 551 |
| Annual of the Universal Medical Sciences..... | 552 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
 DR. GEO. WATT, Xenia, O., or DR. L. P. BETHEL, 513 Jefferson St., Toledo, O.
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CONTENTS.

| | PAGE |
|---|-------------------------------------|
| CONTRIBUTIONS— | |
| President's Address..... | By C. M. Wright, D.D.S. 553 |
| A Study of the Chemical Composition of the Dental Pulp, | |
| <i>By W. H. Whitslar, D.D.S., M.D.</i> | 557 |
| Failures..... | By Dr. C. R. Butler. 561 |
| Woman's Work in the Profession.. | By Martha J. Robinson, D.D.S. 564 |
| One Way of Increasing a Dentist's Usefulness, | |
| <i>By William D. Kempton, M.D., D.D.S.</i> | 566 |
| Excelsior..... | By Dr. H. H. Harrison. 570 |
| Report of Seventh District, Ohio Dental Society, | |
| <i>By E. G. Betty, D.D.S.</i> | 572 |
| Inconsistency.—The License Question in Court, | |
| <i>By Dr. G. A. Mills.</i> | 573 |
| An Address on Anaesthetics..... | By Dudley W. Buxton, M.D., B.S. 575 |
| Patents Considered in Relation to the Patentees and the Public, | |
| <i>By Nemo.</i> | 580 |
| EDITOR'S SPECIALS— | |
| Ohio State Dental Society..... | 585 |
| Revival of Ancient Literature..... | 586 |
| Sad Indeed..... | 587 |
| WHAT WE SEE AND HEAR..... | Edited by L. P. Bethel, D.D.S. 588 |
| BOOKS AND PAMPHLETS— | |
| Dental Chemistry and Metallurgy..... | 597 |
| A Text-Book on Animal Physiology..... | 598 |
| A Text-Book of Materia Medica, Pharmacology and Special Thera- | |
| peutics..... | 598 |
| Alden's Manifold Cyclopedia..... | 599 |
| OUR AFTERMATH— | 599 |

TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
 DR. GEO. WATT, Xenia, O., or DR. L. P. BETHEL, 342 Superior St., Toledo, O.
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